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Broadband Technology Opportunities Program Evaluation Study

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Case Study Report

Round 2

South Carolina State Board for Technical and Comprehensive Education

(South Carolina Technical College System)

Public Computer Center

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Executive Summary

> *"BTOP has enabled us to upgrade the broadband-level infrastructure at our colleges. We've been able to bring people in and teach them things that we take for granted, like being able to access electronic resources." – South Carolina Technical Colleges System Grant Administration Officer*

The South Carolina Technical College System (SCTCS) is the central administrative home for a system of sixteen technical and community colleges governed by the South Carolina State Board for Technical and Comprehensive Education. SCTCS serves 114,000 credit students and 128,000 continuing education students across South Carolina.[1] Each college provides quality, affordable post-secondary education and training open to all South Carolina residents. The technical colleges operate Public Computer Centers (PCC) to provide students and the public with access to the Internet, computers, and training. SCTCS is the largest higher education system in South Carolina.

On February 1, 2010, the National Telecommunications and Information Administration (NTIA) awarded the South Carolina State Board for Technical and Comprehensive Education a Broadband Technology Opportunities Program (BTOP) PCC grant for $5,903,040 to implement the South Carolina Reach for Success project. The goal of this project was to extend broadband access to individuals living in South Carolina by opening or upgrading PCCs throughout the SCTCS. The PCCs offer public access to computer equipment, computer training, workforce training, and educational resources. Through multiple campuses operating localized instructional facilities and service centers, these grant-funded PCCs are strategically located within a thirty-minute drive for everyone living in the state.[2]

SCTCS implemented this grant using three strategic approaches:

1. SCTCS focused on improving the network infrastructure to the PCCs on its campuses. SCTCS's first priority was to ensure that each campus and its facilities with PCCs had adequate broadband Internet service to meet the current networking needs of its users. Thirty-two PCCs improved their broadband speed through the grant by an average of 90 Mbps, making it possible to serve nearly 51,000 users per week.[3]
2. SCTCS upgraded PCC facilities with new computer equipment. The average PCC computer age was more than five years, making them antiquated for current usage demands and expensive to maintain. As of December 2012, SCTCS had installed a total of 3,058 new workstations across 71 new and upgraded PCCs.[4] With network, computer hardware, and operating system upgrades, SCTCS can provide a higher level of service for users at each site.
3. SCTCS expanded the computer skills of the public by offering new digital literacy training opportunities and expanding its portfolio of exams and course curricula available online. The grant made it possible for SCTCS to provide computer classes in new and existing locations that would otherwise have not been possible. SCTCS staff observed users' progress in skills and activities performed online after attending classes at the PCC. This suggests that users changed their perception of the usefulness of the Internet in their daily lives as their skills increased. SCTCS had completed more than 152,000 hours of training as of December 31, 2012.[5]

This case study is one of fifteen performed by ASR Analytics, LLC (ASR) on a sample of eight PCC and seven Sustainable Broadband Adoption (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:[6]

- 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. 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 the South Carolina Reach for Success project. ASR conducted two site visits about eighteen months apart, originally meeting with grant representatives over a three-day period in October 2011. ASR visited administrative offices, Midlands Technical College (MTC), and Trident Technical College (TTC), including the following locations: West Columbia, Columbia, Bates-Leesville, North Charleston, Hollywood, and Moncks Corner. ASR conducted a follow-up site visit with the grantee, project partners, and PCC users from January 29-31, 2013.

ASR transcribed the site visit interviews and focus groups discussions and used this information, and other information and reports provided by the grantee, to supplement Quarterly Performance Progress Reports (PPR), Annual Performance Progress Reports (APR), and other publicly available information.

This case study is primarily qualitative. Although it is difficult to track impacts systematically because of the lack of uniform data collection efforts beyond what is required for the grant, SCTCS staff members and grantee-provided reports discussed the positive impacts of the grant. The evaluation study team noted the following outcomes and impacts of the project:

- SCTCS staff reported that patrons obtained new or better jobs after receiving grant-funded services. Patrons used the increased access and skills acquired at PCCs to create résumés, apply for jobs, and communicate with employers. A PCC specialist at one location recalled at least twenty-five users receiving new or improved employment after receiving training and services at the PCC.
- SCTCS staff reported multiple instances of individuals finding jobs through events such job fairs, trainings, and workshops held at the PCCs. Job fairs allowed 150 users to complete online job applications and complete on-site interviews.
- The PCC services attracted nonstudent users who used the lab for non-educational activities. According to PCC staff, at least one user eventually enrolled in classes as a result.
- SCTCS reported that Internet connectivity and access to computers has increased at the targeted locations. For example, the St. Paul's Parish PCC, located in a rural community, had increased bandwidth from 1.5 Mbps to 20 Mbps, extending access for both TTC students and community residents.[7]
- As SCTCS added new and updated workstations, more users visited the PCCs. Across all colleges, the average weekly users increased by 47 percent, growing from 771 to 1,138 after the improvements.[8]

The BTOP grant was essential to achieving these impacts. A key feature of this project was that it strategically used BTOP funds to meet the different needs in each of the sixteen technical colleges across the state. Each college requested and received grant funds based on its needs. For example, MTC used grant funds primarily to upgrade equipment. The grantee was then able to build on that investment and fund improvements to broadband speeds. TTC used the funds primarily to improve connectivity and funded forty-two workstation upgrades.[9] Before BTOP,

SCTCS experienced significant fiscal constraints, equipment was outdated, and connectivity was limited and inconsistent. Without the grant, SCTCS would have been able to provide only limited access to computers and broadband and few training opportunities to improve skills to build the workforce in South Carolina. As discussed in this report, the focus of SCTCS on improving these conditions was a key part of achieving the benefits described.

Section 1. Introduction

The South Carolina Technical College System (SCTCS) is the central administrative home for a system of sixteen technical and community colleges governed by the South Carolina State Board for Technical and Comprehensive Education. On February 1, 2010, the National Telecommunications and Information Administration (NTIA) awarded the South Carolina State Board for Technical and Comprehensive Education a Broadband Technology Opportunities Program (BTOP) Public Computer Center (PCC) grant for $5,903,040 to implement the South Carolina Reach for Success project. The goal of this project was to extend broadband access to individuals living in South Carolina by opening or upgrading PCCs throughout the SCTCS. The PCCs offer public access to computer equipment, computer training, workforce training, and educational resources.

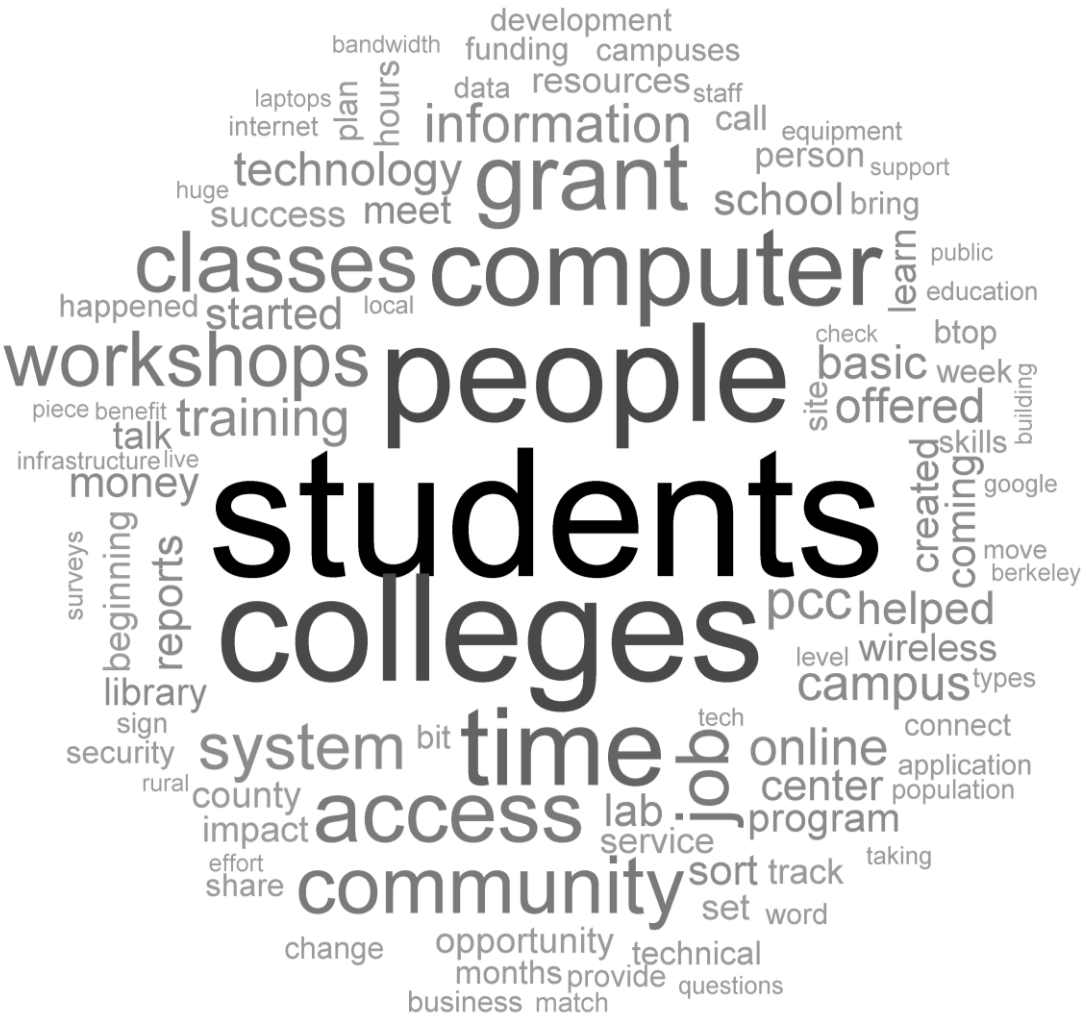
The project provided resources to enable each campus to improve broadband interconnection speeds and service reliability, update the computer hardware and software in the PCCs, and provide digital literacy training. Each technical college was able to tailor the services offered to the unique needs of its individual communities and student populations. As a result, each technical college implemented a different portfolio of network upgrades, computer upgrades, and digital literacy programs, while the SCTCS IT services provided overall management of data, funding, and procurement.

1.1 What the Interviewees Told Us

Figure 1 displays words interviewees used frequently. These interviewees included the grant management team at the SCTCS central office and staff at the Midlands Technical College (MTC) and Trident Technical College (TTC).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.”

The most frequently used word is “students.” Respondents consistently spoke about their focus on SCTCS students during the grant period, which reflects the college system’s core mission. The words “people” and “colleges” were also used frequently. The remaining significant words in the word cloud refer to providing access through “workshops” and “classes.” Respondents also spoke about the grant’s role in providing training to enhance employment opportunities for all users, using the words “computers,” “job,” and “community.”

Figure 1. Words Interviewees Used Frequently



Section 2. Impacts

The most prominent impacts of the South Carolina Reach for Success project were in the focus area of Education and Training, reflecting the overall mission of the technical college system. Interviewees remarked that the goals of BTOP aligned well with their organizational mission to promote economic development through education. SCTCS implemented the grant to support educational and training opportunities that led to new or better employment for students and surrounding community residents. The training and workshops offered at PCCs supplemented SCTCS courses, helping students master basic computer skills that are required for most SCTCS courses. PCC staff members consistently stated that the PCCs attract users from the public, some of whom have enrolled in SCTCS courses after taking PCC trainings and workshops. The skills all users acquired through training increased their employability, as envisioned by SCTCS.

SCTCS did not have a grant-wide mechanism in place for tracking user or impact data beyond what was required to fulfill grant reporting requirements. However, the evaluation study team discussed the following outcomes and impacts during the site visit:

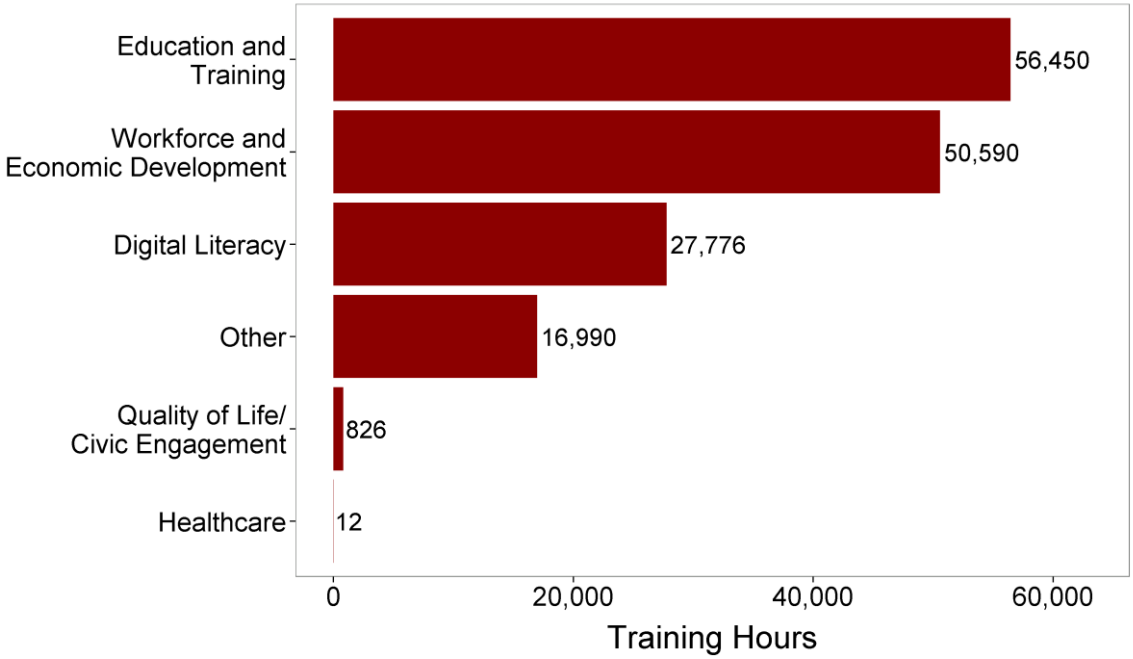
- The grant increased broadband access for student and nonstudent populations. The grant allowed SCTCS to increase student and nonstudent employability and prepare them for successful careers by improving broadband access through expanded bandwidth and improved workstations at seventy-one PCCs.
- SCTCS staff reported that individuals had obtained entry-level employment or improved their employment situation after using the PCC services. Although program-wide data are unavailable, PCC staff reported users receiving new or improved employment after using PCC resources or SCTCS-sponsored job fairs and workshops.
- The PCCs highlighted SCTCS offerings for potential students. Staff noted that some PCC users had enrolled in SCTCS courses after participating in grant-funded training.
- SCTCS believed that the PCC and connectivity improvements and access to training would positively affect student recruitment and retention in the future. The PCCs provided computer training, which supplemented required SCTCS courses for current students and online assessment administration for potential students. On-campus libraries and Academic Success Centers had experienced significant increases of 89 percent and 85 percent, respectively, in average weekly users after grant implementation, indicating more students are using these resources.[10]

2.1 Focus Areas

This section describes the impacts of the SCTCS project in terms of five focus areas. ASR tabulated the training hours for SCTCS reported in the 2012 APR using the focus area categories described in *Interim Report 1* to analyze where impacts should be found for this project.[11]

As shown in Figure 2, SCTCS completed 152,644 training hours, including nearly 56,500 training hours in Education and Training and nearly 50,600 training hours in Workforce and Economic Development.[12] The grantee's concentration on these focus areas was consistent with expectations, as it reflected the mission of the college to "provide learning opportunities that promote the economic and human resource development of the state."[13]

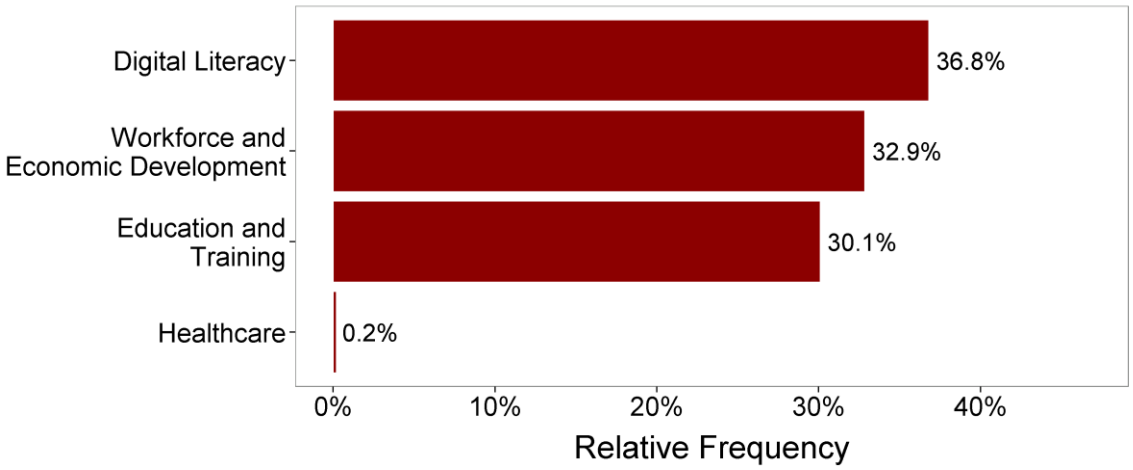
Figure 2. Grantee Training Hours Categorized by Focus Area



SCTCS completed nearly 17,000 hours in workshops and training in areas that affect overall well-being such as managing personal finances and achieving and maintaining home ownership, particularly during periods of economic stress. This type of training was categorized as "Other."

ASR also analyzed the statements the grantee made during the interviews and categorized them based on focus area. Although fewer training hours were devoted to Digital Literacy, the grantee discussed this focus area more frequently than others during conversations, as shown in Figure 3. This suggests that other mission-oriented activities of Education and Training and Workforce and Economic Development depend on enhanced Digital Literacy skills among users.

Figure 3. Focus Area Statements Made by Interviewees



2.2 Education and Training

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 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.

Given the school's mission, SCTCS directed the majority of its activities toward this focus area, including the following:

- SCTCS stated that it was important to upgrade the equipment in computer centers because that is where students go for academic assistance and tutoring. The Academic Success Centers provided courses, including Five Ways to Access College Information, Five Ways to Stay on Target, How to Use Desire 2 Learn, and Using Google Tools to Collaborate in Online Projects. The college campuses offered a variety of courses ranging from college courses for credit to noncredit courses open to students and the public. Some of the college courses included online exams, Internet research for introductory English classes, library instruction, and college skills. Noncredit courses included free tax preparation, résumé basics, Microsoft Excel, Internet basics, keyboarding, and GED prep.
- MTC offered eighteen workshops per year during the grant period. Some workshops trained students to use the online educational components of the SCTCS curriculum, such as My MTC Online and Desire to Learn.
- Although MTC PCC users were primarily students, members of the community also had access to computers and training courses. MTC staff stated that a nonstudent PCC user became a student after participating in grant-funded training.
- TTC extended broadband access to rural areas that had little or no access before the grant. According to the TTC Vice President of Information Technology, approximately 41 percent of students were enrolled in online courses. Students visited the rural St. Paul's Parish and Berkeley PCCs when access to the main campus in Charleston was not possible.
- Expanding the bandwidth to St. Paul's Parish provided the community high school with broadband access that it did not have before the grant. As of January 2013, the St. Paul's Parish PCC had administered seventy-five online assessments for high school students wanting to attend TTC.[14] The assessment helped TTC determine the most beneficial educational opportunities for students in the area. TTC staff would not have been able to administer the assessments online without the increased bandwidth.
- The St. Paul's Parish PCC served as a hub for connecting parents to a new charter school in the area. Staff members reported that more than 200 parents used the PCC to complete online admissions applications for their children.
- TTC personnel stated that they expected the training courses to improve retention among students in the future. SCTCS required an introductory computer course as part of its core curriculum. PCC staff stated that the grant-funded basic computer training helped students who struggle with computer skills to pass this course. Expanded bandwidth also allowed the colleges to provide online video tutorials, which helped SCTCS students learn to navigate online curriculum components, providing them with the tools they need to achieve academic success. Although the grantee anticipated improved retention and increased enrollment resulting from grant-funded upgrades, SCTCS had no data on student retention and enrollment at the time of the site visit.

2.3 Digital Literacy

> *"The needs of the community vary greatly, but all are important. Some of our class members are made up of people who have never used a computer at all and who are part of our older population who would have no other way of learning the new technology." – PCC User, TTC Berkeley Campus*

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."[15]

The SCTCS strategy focused on improving the network infrastructure and computer hardware and software in the PCCs and expanded the service hours for each PCC. The staff on each campus also increased the number of workshops and classes focused on teaching Digital Literacy skills. The Digital Literacy classes included courses on keyboarding, computer basics, e-mail account creation and use, and basic skills for using the campus web-based learning management system.

Berkeley PCC staff noted that participants varied in their levels of knowledge and their motivations for learning to use computers and broadband. For example, some had no previous experience with computers and others were seniors who would otherwise have no other way of learning about broadband. Many MTC students had low incomes or were first-generation college students. SCTCS staff conducted multiple workshops and trainings to address varied levels of Digital Literacy. SCTCS reported the following outcomes and impacts related to Digital Literacy:

- SCTCS staff noticed users' progress in skills and activities performed online. Before grant-funded training, some users were unable to operate a computer or access the Internet. Staff reported that users learned to create a résumé, set up an e-mail account, and attach their résumé to the e-mails for submission to potential employers. Others came into PCCs to gain enough skills to communicate with family and friends, but eventually began taking additional classes such as Microsoft Word and Excel.
- Patrons who gained basic computer proficiency from the PCC services returned to the PCC to improve their skills and increase their competitiveness for employment.
- Basic workshops such as "Eek! A Mouse!" and the Technology Petting Zoo introduced participants to tools such as the computer mouse and iPod Touch to reduce the fear associated with new technologies.
- Users commented on how taking classes at the PCCs helped improve their Digital Literacy skills:
  - "This class has helped me with Word, Excel, PowerPoint, and the rest of Microsoft Office. My office skills are much improved…my confidence with computers has also improved."
  - "I am a senior citizen with very little computer experience. After attending the classes, I feel a lot more confident in my computer capabilities. I am no longer afraid to turn the computer on and can truly state that I can confidently navigate around my e-mail account and other programs I use."
  - "This class is very beneficial to me. When I first started, I only knew how to turn on the computer. Since being a student in this class, I have learned a lot about Microsoft PowerPoint and Excel."

2.4 Workforce and Economic Development

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.

In accordance with the technical college system's overall vision and mission, the goal of South Carolina Reach for Success Project was to provide broadband access and training to SCTCS students and members of the surrounding communities to increase their employability and prepare them for successful careers. The SCTCS Chief Information Officer stated that without the grant, the state system schools would not have been able to obtain fundamental materials such as expanded bandwidth, upgraded computers, and training that enabled them to compete with the larger universities in the state. Students realized that the SCTCS colleges provided closer and less expensive training and tools than larger universities. Grant funding provided the general infrastructure for students to learn skills needed for employment with high-tech major employers in the state. Grant funding allowed SCTCS to provide the following:

- Nursing students used dedicated workstations to complete coursework, complete online course exams, and prepare for state licensure examinations. The grantee provided over 3,000 hours of instructor-led classes to nursing students.[16]
- SCTCS provided 1,400 hours of WorkKeys jobs skills preparation and assessments to 230 individuals.[17] This assessment determines a job seeker's skills in order to target training based on individual needs.
- By the end of 2012, the grantee provided nearly 10,000 hours of instructor-led workforce and economic development classes and workshops to over 4,000 participants.[18] The courses taught users how to create résumés, complete online job searches and employment applications, and develop interview skills.
- The PCC staff offered one-on-one assistance to help community residents develop and expand their businesses. PCC staff reported that users perform a variety of activities, including drafting contracts, submitting work proposals, developing marketing materials, and networking. Business owners also take instructor-led classes and workshops, such as Excel, to improve their business management skills.

SCTCS was unable to track the number of users who received employment after receiving grant-funded services. Staff members reported observing the following impacts because of increased access and training:

- TTC staff reported that twenty-five individuals found jobs because of access and training at the PCC. The training focused on job search skills such as creating résumés, applying for jobs online, and managing the job search using computer tools and the Internet.
- The staff reported helping employed individuals apply for better positions. Because of increased digital literacy skills, PCC staff stated that these individuals have since attained better employment.

2.5 Quality of Life/Civic Engagement

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. This category was not a principal focus of the SCTCS project and there is only

modest evidence to specific activities to support this focus area. However, the presence of the PCCs provided the opportunity for presentations, workshops, and training to increase citizen awareness and participation in government programs. For example, during tax season, the TTC campuses offered a Tax Clinic where community-based bank representatives assisted PCC users in completing tax filings at no charge. This one-on-one assistance educated users on personal accounting.

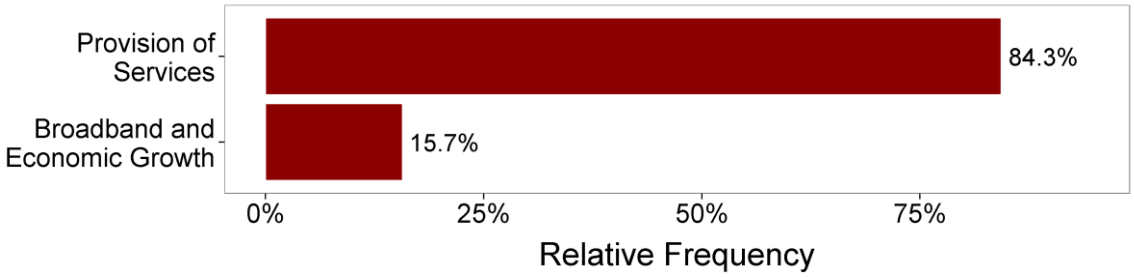
Section 3. Recovery Act Goals

This section describes the activities and outcomes associated with Recovery Act goals. Of the five Recovery Act goals for the BTOP program as a whole, two relate most directly to PCC 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

As show in Figure 4, approximately 84 percent of the interview conversations focused on providing services to increase access to and use of broadband. Nearly 15 percent of grantee discussions focused on broadband and economic growth, specifically with activities to improve résumés and use the Internet to find jobs.

Figure 4. Frequency of Topics Related to Recovery Act Goals



3.1 Provision of Services

The goal of this project was to improve the PCCs used by SCTCS students and members of the communities surrounding the technical colleges. By the end of 2012, the grantee had established new PCCs or made improvements to a total of seventy-one PCCs across the technical college system.[19] The grantee also installed 3,058 new workstations, as shown in Figure 5. Twenty-one PCCs also received new broadband wireless connectivity.[20] SCTCS installed workstations during summer and winter breaks when students were away from campus and typically not using the equipment and services.

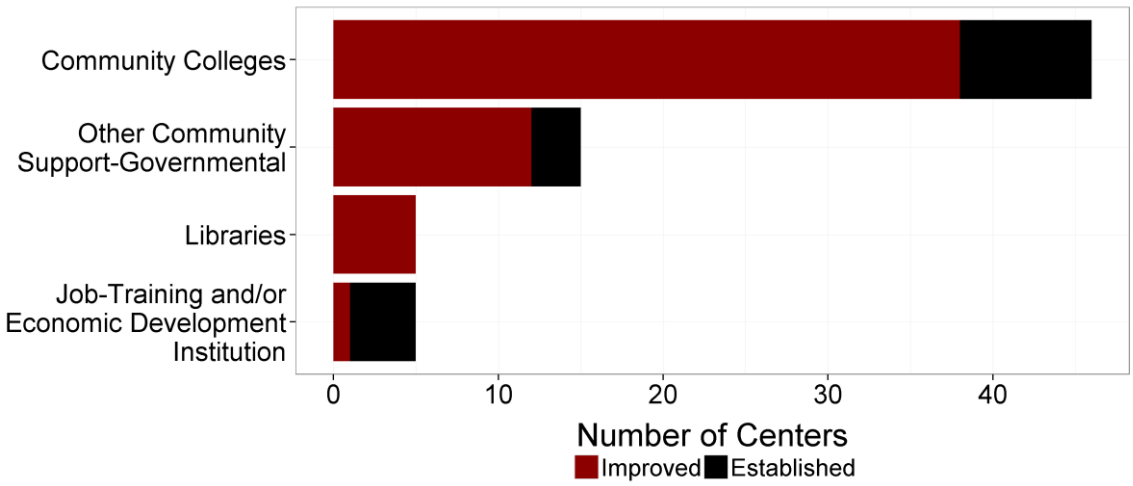
Figure 5. Cumulative Workstations Installed

PCC staff reported that they provided broadband education, awareness, training, access, equipment, and support through three activities, discussed in the following subsections.

3.1.1 Upgrading Equipment

As shown in Figure 6, SCTCS established or upgraded seventy-one PCCs in community colleges, libraries, job-training and economic development institutions, and community support and governmental institutions.[21] MTC upgraded equipment in eight PCCs and created three PCCs, extending access to individuals in smaller communities and campuses who could not travel to the larger campuses in Columbia. MTC staff commented that, before the upgrade, students did not want to use the computers.

Figure 6. Quantity and Type of PCCs Improved or Established



The grant allowed SCTCS to offer students a broader range of technologies, including wireless devices. Across the college system, more than 300 mobile devices such as laptops, tablets, and iPads were available for user checkout and use on or off campus for up to one week, making it more convenient for students to study and complete coursework for a variety of courses as part of their college curriculum.[22] MTC staff stated that, once these mobile technologies were introduced to

students, they realized the opportunities these technologies provided. Checking out netbooks and laptops provided access to computers when the Academic Success Centers were full, and provided resources to commuting students who would not have had access to a computer otherwise.

MTC also purchased a mobile cart to charge a group of laptops and to make it convenient to move the laptops from room to room to allow use in different courses. With the availability, instructors used the laptops to complete more online exercises and training during class.

The grant also allowed SCTCS to create a PCC primarily for use by nursing students. The nursing curriculum required specialized software and had an online component for instruction and examination. Classes offered through the PCCs included Fundamentals of Nursing, Pharmacologic Basics, and Basic Nursing Concepts.

3.1.2 Expanding Internet Connectivity

Sixty-eight PCCs reported the average access speed of 84 Mbps after grant implementation.[23] SCTCS provided evidence that access had increased at the targeted locations. For example, the St. Paul's Parish PCC, located in a rural community, increased bandwidth from 1.5 Mbps to 20 Mbps, extending access for both TTC students and community residents. In rural communities, residents lacked home access to computers and the Internet. Service in rural areas was limited, and transportation was a challenge. Having free, local broadband access provided a service that rural residents would otherwise not have had available.

Although the grant did not fund the Wi-Fi upgrade, MTC was able to make the investment after the grant funded the other equipment upgrades. SCTCS staff stated that neither upgrade could have been successfully implemented without the other. Before the grant, wireless connectivity in classrooms was limited and inconsistent. Faculty members were unable to use online resources in class because students did not have the tools to access them. All MTC campuses received secure wireless access, and more classes had integrated online content. MTC staff members noticed an increase in use of those online components whether the course is on campus or online. For example, some professors used it to facilitate online discussion or to post course material. By having both new equipment and the infrastructure to support the computers, MTC was better able to achieve its core mission.

SCTCS staff reported that before the grant, students did not want to use computing centers because of outdated computers and slow connections. PCC staff stated that the computer centers were frequently full after the upgrades. Evaluation team observations during the site visit supported this statement.

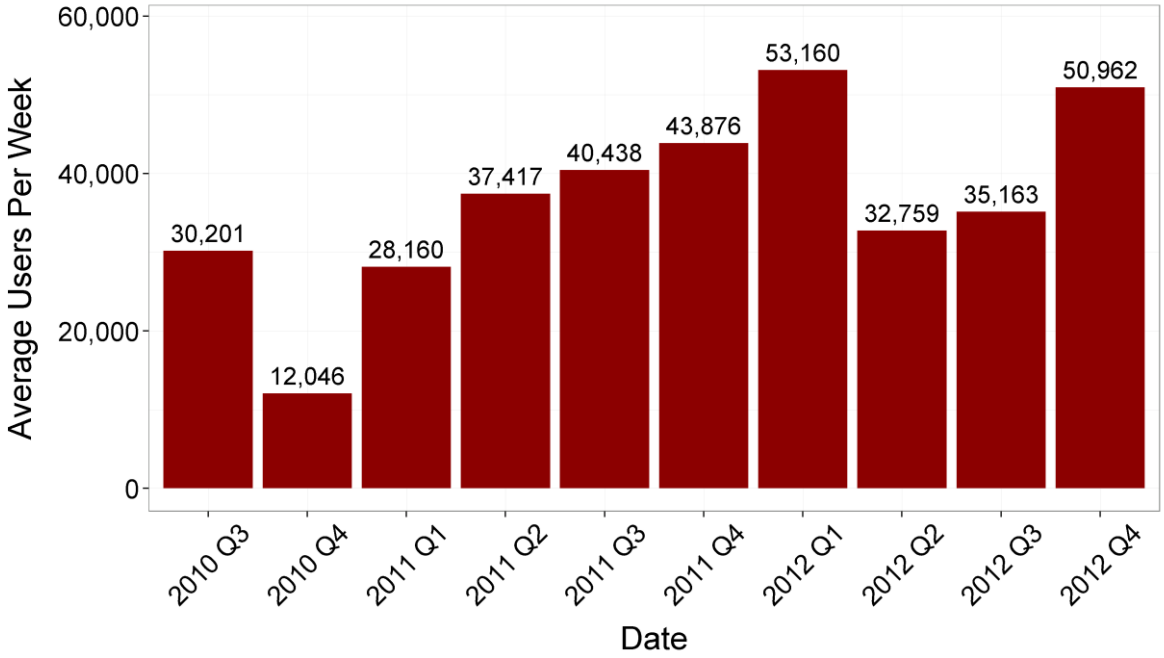
3.1.3 Training Courses and Workshops

Staff reported that training at the TTC PCCs helped individuals understand the benefits of access to computers and the Internet. The workshops were helpful for many local residents who were new subscribers to broadband services or who had recently purchased new computers. Some PCC users had Internet access at home but were not comfortable with the technology. The sites conducted workshops, canvassing students to determine training needs and faculty to determine expertise. The training they offered included how to use the Internet, e-mail, and Microsoft Office applications.

PCC user surveys indicated that users access the Internet for many different purposes, including conducting job searches, completing online classes, and filing unemployment claims. A St. Paul's Parish PCC user survey found that nearly 30 percent of users would find basic computer skills training helpful and 25 percent of users requested basic Internet skills training.[24] The survey results were used to further target trainings and workshops to meet the demands of the population. As of January 2013, the St. Paul's Parish PCC had completed 210 training hours and 22 training

programs with 681 participants.[25] Figure 7 demonstrates that, across the project, the average weekly users increased from just over 30,200 in 2010 to nearly 51,000 in 2012.[26] PCC usage varied based on the SCTCS academic calendar. There was less PCC activity during academic breaks because fewer students visited campus during those times. The decrease in average weekly users between quarters one and two of 2012 was the result of increased use of mobile labs and the completion of spending in some colleges.

Figure 7. Average Weekly Users across All SCTCS PCCs



MTC conducted multiple workshops on each campus and used the Video News Network (VNN), library webpage, and fliers to promote trainings and workshops. The St. Paul's Parish PCC hosted the Community and Education Day to promote PCC services and TTC educational opportunities. During the one-day event, approximately 121 individuals attended workshops on a variety of topics such as how to use social media to find jobs, how to apply to TTC, and how to obtain financial aid.[27]

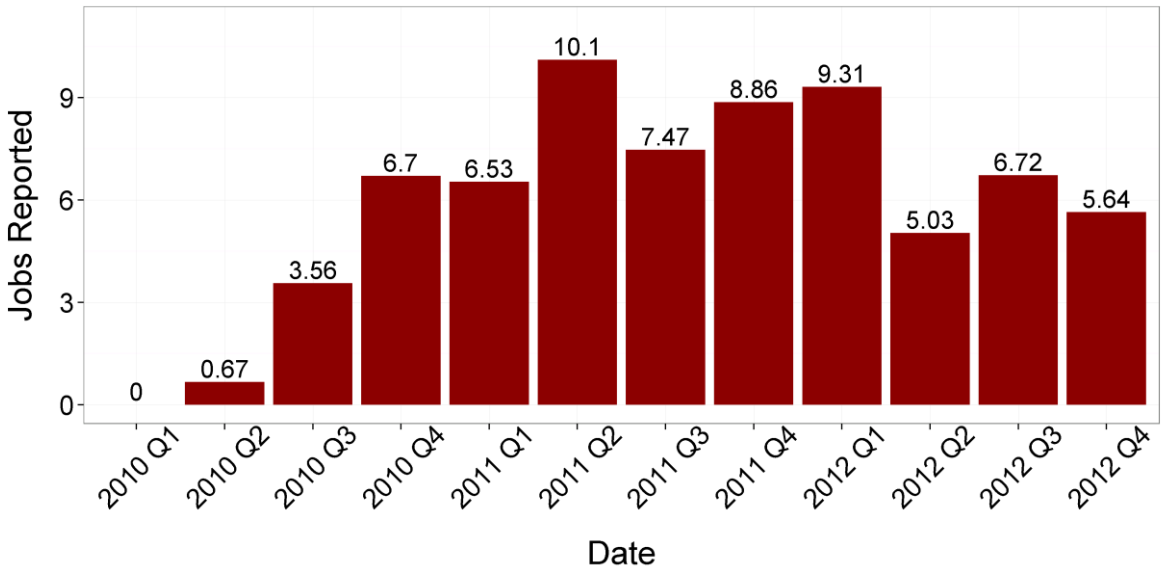
3.2 Broadband and Economic Growth

The colleges worked with local employers to determine their workforce needs and train students to fill those needs, creating basic computer and Internet capabilities and then adding more advanced technology training. This structure prepared students for employment at companies across the state, including Boeing, Google, and Michelin. Over time, the SCTCS Chief Information Office expected that the enhanced workforce, especially in rural areas, would be attractive for firms seeking to locate to the state.

For community residents, the PCCs provided a way to help develop home-based businesses. PCC users included business owners who performed activities that included drafting contracts and submitting bids for work; taking classes to learn Excel to manage their businesses better; and creating marketing and advertising plans and materials to promote their business. PCCs also hosted workshops to assist and teach entrepreneurs about the benefits of these activities. It is clear from these activities that SCTCS had demonstrated how the grant stimulated the demand for broadband and supported economic growth among the target population.

As required by the Recovery Act, the project reported quarterly on the number of direct jobs created because of the project. As shown in Figure 8, fluctuations in jobs created were the result of hiring staff to meet training demands throughout the school years.[28]

Figure 8. Direct Jobs Created by SCTCS



Section 4. Grant Implementation

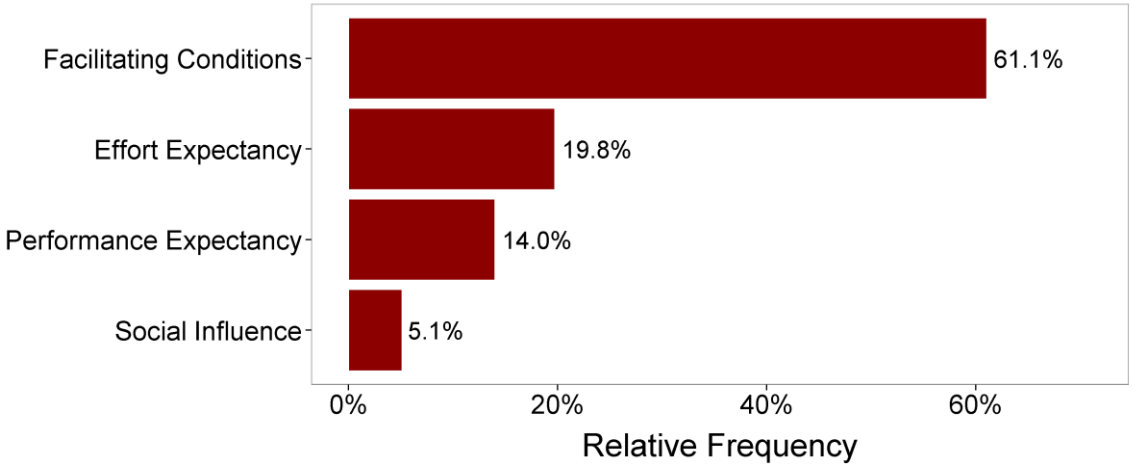
This section describes particular aspects of implementation of the South Carolina Reach for Success grant in order to understand the composition of activities and outcomes observed. The purpose of this section is twofold. First, defining a consistent set of categories for each of the grants in the study 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 grantee's 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).[29] 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 9 presents the relative frequency of topics related to grant implementation as discussed during interviews and focus groups. These topics were placed in four categories, each of which is described in more detail below. Over 61 percent of the implementation topics discussed relate to Facilitating Conditions, more than all other dimensions combined.

Figure 9. Distribution of Grant Implementation Topics by UTAUT Dimension



4.1 Facilitating Conditions

Facilitating Conditions 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 lifestyle and activities, and the cost of using broadband. This also includes the resources needed to support the PCCs' services to provide access to the Internet and computers, such as the broadband connection, computers, workspaces, and clean and safe computer labs.

4.1.1 Access

SCTCS improved access to the Internet and training opportunities in order to facilitate broadband use. Bandwidth increased with the number of computers, expanding connectivity and access points, and reducing students' frustration in trying to connect and complete assignments. Providing basic computer and Internet training reduced fear associated with using the Internet. Hosting training and workshops at different locations and times offered students multiple opportunities to participate. Careful coordination of trainings and workshops was an important facilitator of broadband use. For example, the PCC staff observed that hosting workshops during the beginning of the semester or around semester breaks inhibits participation, while hosting résumé workshops in the spring before graduation increased participation. For many, transportation was an issue, particularly in rural areas. Providing local access encouraged PCC use and training participation, which can lead to greater Internet use and future home adoption. Providing access and training at no cost to users eliminated a major barrier for Internet use for many.

4.1.2 Equipment

SCTCS provided upgraded computers to many in the target population who did not have access otherwise. In addition, colleges ensured that there is little to no down time with the computers by keeping them maintained and repairing them quickly. Allowing students to check out equipment also supported potential broadband adoption. Checking out netbooks and laptops allowed students to complete assignments on or off campus. Workshops like the Technology Petting Zoo and "Eek! A Mouse!" familiarized students with the technology to ease anxiety and encourage use.

4.1.3 Staff

Instructors provided one-on-one support, were patient with students who were frustrated with and fearful of technology, and offered additional online tools to students who needed extra help. Instructors were present in the PCCs to assist students. However, they also encouraged students to help one another. Many PCC staff members were residents of the community they served. They cultivated strong relationships with PCC users, who in turn had a deep respect for them.

4.2 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. For PCCs, it indicates how the service model made using broadband to access information and services on the Internet easier. Examples include the following:

- Some PCC users had little to no experience with computers, had never touched a computer mouse before, or had ever attempted to go online. Others had access at home but did not know how to use it. Still others had basic digital literacy skills but needed training for a specific online activity such as conducting job searches. Some users had a language barrier and required training at a slower pace with more repetition.
- SCTCS staffed PCCs with those who could respond to a number of questions during training classes or open lab time. Users stated that the patience and encouragement instructors provided made them confident that they can learn these skills.
- As described in the Social Influence subsection below, the social nature of the PCC and word-of-mouth advertising for the PCC provided opportunities to address effort expectations. Peers were reported to participate in setting Effort Expectancy goals for prospective users.

4.3 Performance Expectancy

Performance Expectancy measures the degree to which a potential adopter believes that using the PCC to gain access to broadband is beneficial for an activity in the focus areas. 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 include the following:

- Performance expectations varied across the target population. For example, some students expected improved education and employment outcomes, while some seniors expected to maintain better contact with distant family and friends.
- SCTCS used trainings and workshops to address Performance Expectancy, bringing awareness to the usefulness and benefits of Internet access. One Senior PCC user stated, “For students, many, like me, are retired but have forgotten much, and it is a wonderful opportunity to refresh my skills and learn to use new programs. We all know it is so important with our aging population to keep us learning and keep our brains active.”
- PCC staff determined user needs and preferences for classes to ensure relevance. Instructors used surveys and solicited suggestions to promote better understanding and practical use of subjects covered in training classes. The PCC staff also stated that the trainings exposed students to the range of activities possible online. Users’ performance expectations changed, and the staff noticed their skills expanding and observed them performing a broader range of activities online. Users would come to the PCC to use social media, and then continue their training with classes in subjects such as Excel and Word.

4.4 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. Examples include the following:

- The social aspect of the PCC brought some users in for training. Users reported that the classes gave them something to look forward to and that the other users were like a second family. PCC staff stated that users provided a friendly environment where they showed each other how to use the computer, outside of traditional class instruction.
- Social Influence was also evident in the expansion of digital literacy skills. Users influenced one another to expand their skills through training classes. Younger users brought in their parents and grandparents to the PCCs to gain access and improve skills.
- SCTCS stated that word of mouth was a vital outreach tool that was encouraged across the PCCs. Community residents might never come to a SCTCS campus without a reason. Through word of mouth they learned about SCTCS and the services PCCs provided. They then shared their experience with others. PCC staff members were well connected with the local communities and promoted PCCs in churches, civic organizations, schools, and local events. Staff members also had relationships with the other businesses and agencies, which they used to promote PCC activities.

Section 5. Techniques, Tools, and Strategies

This section describes successful techniques, tools, and strategies identified by the grantee. SCTCS noted many successful techniques, tools, and strategies that it developed over the course of the grant.

5.1 Techniques, Tools, and Strategies

- SCTCS central office offered cohesive grant coordination, particularly for an award that addressed the varied needs of sixteen technical colleges. The coordination required a program coordinator and financial personnel to manage the grant at each college. The grant provided a certain degree of autonomy to each technical college by allowing them to determine the best way to implement funds for their campus's needs. This resulted in targeted implementation whereby each technical college used grant funds to carry out activities and services that matched the needs of its communities and target population.
- SCTCS coordinated one meeting with all colleges every six weeks to share ideas and discuss opportunities and challenges to improve implementation. The meetings resulted in the development of systematic methods of tracking student computer usage and the Advanced Inventory Management (AIM) system for tracking inventory.
- SCTCS completed infrastructure updates before completing computer upgrades to ensure they would be fully functional. At both MTC and TTC, both computers and connectivity upgrades were necessary in order to implement the grant effectively and achieve the project's goals.
- Leveraging the volume and buying power of the college system resulted in the acquisition of favorable pricing from PC vendors. This successful bidding process produced surplus funds, used to fund additional installations and upgrades in broadband connections.
- MTC increased access by offering workshops and training classes at multiple campuses at a variety of times. SCTCS staff assessed the needs of the users to determine the most appropriate workshops and trainings to offer.
- Online orientations provided students with step-by-step video tutorials of online curriculum components. Online tutorials assured student participation in and success with the online curriculum components.
- The TTC president stated that having key personnel with personal ties to the community in PCCs was a success. As natives of their communities, the site coordinators were familiar with community needs and resources and could target outreach, workshops and training, and sustainability efforts accordingly.

5.2 Challenges

- Delivering student support services online continued to be a challenge because of the lack of an Enterprise Resource Planning (ERP) system. ERP was a business management software platform that integrated internal and external information across all facets of an organization. Such systems were expensive, and the bidding process was lengthy. SCTCS hoped to be able to implement such a system in the future.
- Determining how and what data to track was a challenge, particularly in attempting to unify data collection across the sixteen colleges in the system. Colleges had to backtrack to ensure data accuracy. However, uniform data collection was a persistent problem throughout the grant period.

- Despite targeted and flexible grant implementation and strategic staffing to match services with target population needs, SCTCS stated a desire for more time to develop a strategy with a needs assessment before implementation in order to create appropriate training classes and workshops and to maximize use of the PCCs.
- The Spartanburg PCC had low attendance and subsequently closed. SCTCS relocated the equipment to a nearby PCC with higher demand. The PCC closing revealed that, although it was located in a densely populated metropolitan area, the population in the area did not have a need for a PCC at that location.
- Some of the workshops offered had low participation rates, such as Raising a Reader, a workshop that used computers to help parents encourage reading for their children. This also reflects the need for more advanced needs assessments of target populations before implementation.

Section 6. Conclusions

The South Carolina Reach for Success project approached issues of broadband access and adoption by focusing on Digital Literacy and Education and Training activities to prepare students and, in some cases, community residents, for careers. The grant provided essential equipment and infrastructure to improve broadband access in all sixteen colleges across the state. The service model used by the grant emphasized the use of training and workshops to introduce individuals to computers and the Internet to reduce barriers for broadband use. Services made users aware of the benefits of computers and the Internet in their daily lives. These services included basic computer skills and workshops on financial literacy, tax clinics, and online shopping.

The PCCs provided a supportive environment in which students and community residents could obtain assistance and learn the skills necessary to complete school assignments, find a job, connect with family and friends, or engage in other meaningful activities online. Personal attention and one-on-one training seemed to be the preferred teaching modality among PCC users.

The skills and training demands of the PCC users varied. However, the PCC staff noted that many users needed introductory training and workshops to be comfortable with using technology they never used.

PCC outreach efforts, trainings, and workshops resulted in increased exposure for the college system. Potential students were able to see what SCTCS could offer. The college system could also compete with the larger universities in the state because it could provide tools closer to residents' homes at a lower cost to students.

The components of the project that provided the most significant benefits to users include access to educational information, e-mail access, completing coursework, and conducting job searches. The project was the technical college system's first system-wide grant. SCTCS overcame challenges, developed standards, and facilitated participation across colleges. The lessons learned and grants management skills developed during the grant period are vital to sustainability of activities and services at the close of the grant.

Although it is difficult to track impacts systematically because of the lack of uniform data collection efforts beyond what is required for the grant, SCTCS staff members reported individual cases of PCC users obtaining jobs and continuing with formal education. Grantee-reported data show the college system made improvements to its PCCs that made it possible for it to offer more classes and target a larger population surrounding the colleges. SCTCS would not have been able to achieve these impacts if not for the BTOP grant.

Section 7. Quantitative Analysis

The qualitative evidence presented in this report is supported by quantitative analysis of publicly available data hosted by NTIA on the *BroadbandUSA: Connecting America's Communities* website. The evaluation study team examined data reported by SCTCS in its 2010-2012 APRs and PPRs to find evidence of the grant's impacts on campuses and other locations across South Carolina, as described below. Each of the sixteen technical colleges determined how to implement the grant funds based on its individual needs. For example, some colleges initially sought to improve the number of workstations available for use, while others focused on improving broadband connectivity. As a result, activities and investments vary widely across the grant. Table 1 summarizes the proposed improvements across PCCs on each technical college, identified in 2009 as part of the grant application process. This also reflects the diversity in investments among the colleges during the grant period.[30]

Table 1. Areas of Proposed Activity by SCTCS

College	Add Business Week Hours to PCCs	Add Weekend Hours to PCCs	Add Work-stations to PCCs	Improve PCC Speeds
Aiken Technical College			✓	✓
Central Carolina Technical College	✓	✓	✓	✓
Denmark Technical College	✓	✓	✓	✓
Florence Darlington Technical College			✓	✓
Greenville Technical College		✓	✓	✓
Horry-Georgetown Technical College			✓	
Midlands Technical College	✓		✓	
Northeastern Technical College		✓	✓	
Orangeburg-Calhoun Technical College	✓	✓	✓	✓
Piedmont Technical College	✓	✓	✓	✓
Spartanburg Community College	✓	✓	✓	✓
Technical College of the Lowcountry	✓	✓	✓	
Tri-County Technical College	✓		✓	✓
Trident Technical College	✓	✓	✓	✓
Williamsburg Technical College	✓	✓	✓	
York Technical College	✓		✓	

SCTCS expected to add nearly 22,000 new users to the PCCs across all of the colleges by:[31]

- Adding more operating hours so thirty-three PCCs are open for an average of fifty hours per business week and thirty-four PCCs are open an average of nine hours on the weekend.
- Adding and upgrading 1,475 workstations in 59 PCCs.

- Improving the network infrastructure in thirty-two PCCs to increase broadband speeds from an average of 19 Mbps to 52 Mbps.

Through in-depth interviews with key technical college leaders, the evaluation study team learned that the proposed plans evolved and changed during implementation. With the adjustments, SCTCS achieved the outcomes discussed in the following subsections.

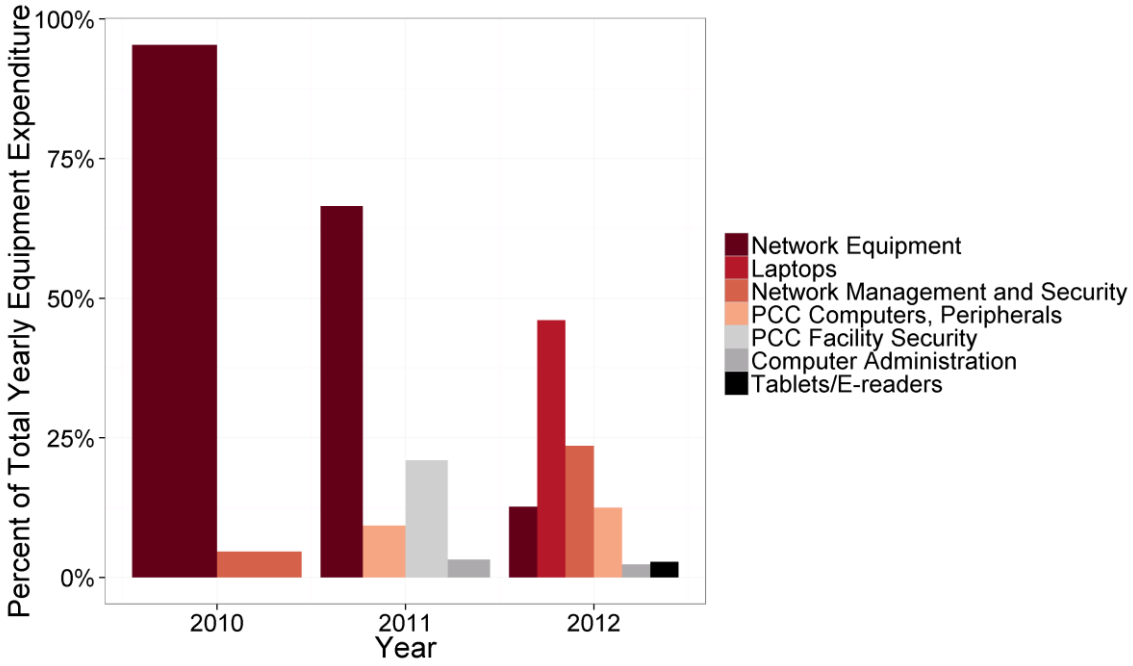
7.1 Network Improvements

SCTCS proposed to improve the broadband connection speeds by an average of 20 percent for thirty-two PCCs, including twenty-eight general-purpose PCCs and four Career Resource Centers.[32] SCTCS reported connection speeds averaged 76 Mbps among thirty-five PCCs before improvements were made as part of the grant.[33] After the grant, connection speeds improved to an average of 84 Mbps among sixty-eight PCCs, exceeding the proposed goal for network improvements.[34] SCTCS focused its strategy on network infrastructure improvements, particularly during 2010 and 2011. As described in Table 2 and illustrated in Figure 10, SCTCS spent 47 percent of the grant funds on network equipment to enable the network to carry higher speeds and build new connections to new PCCs.[35]

Table 2. Percentage of Computer and Network Infrastructure Expenditures

Equipment	Yearly Percentage			Total	
	2010	2011	2012	Expenditure	Percentage
Computer Administration	0.0%	3.2%	2.4%	$29,125	2.1%
Laptops	0.0%	0.0%	46.0%	$297,591	21.7%
Network Equipment	95.4%	66.5%	12.7%	$650,680	47.3%
Network Management and Security	4.6%	0.0%	23.6%	$166,033	12.1%
PCC Computers and Peripherals	0.0%	9.3%	12.5%	$121,426	8.8%
PCC Facility Security	0.0%	21.0%	0.0%	$91,521	6.7%
Tablets and E-readers	0.0%	0.0%	2.8%	$18,060	1.3%

Figure 10. Percentage of Computer and Network Infrastructure Expenditures by Year



These expenditures included replacing routers, improving packet management, adding voice capabilities, and providing wireless connections. Ninety-five percent of the improvements to the PCCs were for network equipment and the remaining 5 percent on enhancements to improve network management in 2010. As the grant moved forward in 2011, network equipment remained the top expenditure. However, in 2012, SCTCS shifted the focus to purchasing laptops while still spending 37 percent of its budget on network equipment, network management, and security.[36]

SCTCS contracted with local Internet service providers through the grant period and increased connections speeds to an average of 84 Mbps among sixty-eight PCCs.[37] Tri-County Technical College reported that it has gigabit connection speeds servicing its campuses in Anderson and East Pendleton. With the improved broadband speeds, the fastest service was available in PCCs on campus, campus libraries, and Academic Success Centers. Service to off-campus sites was significantly slower than service on-campus, but the off-campus sites had much faster service than they had before the grant. The connection speeds provided to public libraries averaged 6 Mbps, and off-site PCCs averaged 25 Mbps.[38]

7.2 Computer Hardware Upgrades

SCTCS considered updating its computer hardware to be a top priority in its strategy to increase access to its PCCs operating on campuses and in off-site locations. SCTCS also deployed workstations in both existing PCCs and new PCCs.

Table 3 compares the distribution of workstations across the grant before and after grant implementation for existing PCCs, as reported by the grantee in APRs from 2010-2012. In the grant application, SCTCS proposed to nearly double the number of workstations with up-to-date hardware, operating systems, and software.[39] By the close of the grant, the grantee surpassed this goal, offering a total of 2,691 workstations across the grant, an increase of 121 percent among existing PCCs.[40]

Table 3. Distribution of New Workstations for Existing PCCs

Location Type	Before Improvements	After Improvements
Academic Success Center	221	509
Career Resource Center	133	140
Government	0	10
Learning Resource Center	116	277
Library (Public, Off-Campus)	92	42
Library (On-Campus)	132	272
Public Computer Center (Off-Campus)	50	40
Public Computer Center (On-Campus)	472	1,401
Grand Total	**1,216**	**2,691**

Before the grant, SCTCS provided access to 1,216 workstations. With grant funds, SCTCS added 1,475 workstations to provide students and the public access to 2,691 workstations. SCTCS allocated these workstations primarily to campus locations including PCCs, libraries, and Academic Success Centers.

SCTCS also established new PCCs with new workstations. As described in Table 4, SCTCS opened 27 new PCCs and installed 496 new workstations.[41] In the PPR submitted in the fourth quarter of 2012, the grantee reported installing a total of 3,058 workstations across the grant.[42] This figure varies slightly from what the APRs reflect. Although the grantee did not provide an explanation for this variance, SCTCS reported that during grant implementation workstations were relocated from PCCs with less traffic to those with more. ASR believes that the reallocation of workstations possibly resulted in errors in reporting.

Table 4. Distribution of New Workstations for New PCCs

Location	Number of New Workstations	New PCCs	Percentage of Total New Workstations	Percentage of Total New PCCs
Academic Success Center	152	9	31%	33%
Career Resource Center	107	4	22%	15%
Government	26	2	5%	7%
Library	10	1	2%	4%
Public Computer Center	99	5	20%	19%
Public Computer Center (Campus)	102	6	21%	22%
Grand Total	**496**	**27**		

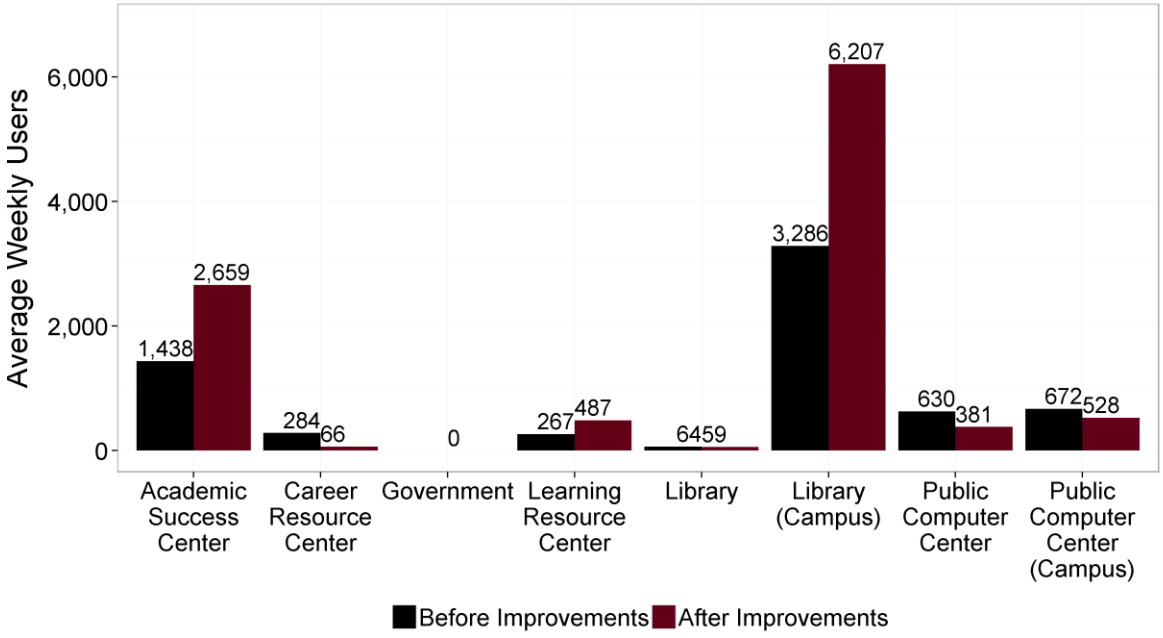
Academic Success Center PCCs gained the largest number of new workstation installations. Approximately 60 percent of the new workstations were distributed almost evenly between Career Resource Centers, off-campus PCCs, and on-campus PCCs. While some colleges reduced planned workstations for some existing off-campus PCCs, ninety-nine new workstations were distributed to new off-campus PCCs. Approximately 33 percent of new PCCs established were in

Academic Success Centers, which were located on technical college campuses and are primarily for student use.[43]

7.3 Impact on the Average Number of Users

With the combination of improvements to the network, updates to computer hardware, and expansion of digital literacy training opportunities, more users visit the PCCs, while the distribution of users shifted as users adjusted their usage behavior. As the grant started implementation in 2010, each PCC across all of the colleges provided an average of 771 users per week with access to the Internet and computers.[44] Figure 11 presents the averages for each PCC type.[45]

Figure 11. Comparison of the Average Number of Users by PCC



Before implementation of the grant, the largest number of users visited campus library and Academic Success Center PCCs. Libraries averaged more than 3,200 users, and Academic Success Centers averaged more than 1,400 users per week. After SCTCS improved existing sites and opened new PCCs, the average number of users for each PCC increased to 1,138 users per week. Campus libraries remained the most popular location for users to access the Internet and computers, with the average number of users nearly doubling. The average number of users in academic success centers also grew to more than 2,600. There were declines in both off-campus and on-campus PCCs and in Career Resource Centers. Two factors help to explain this change. First, at the same time that SCTCS improved the network infrastructure and upgraded the computer equipment in the PCCs, SCTCS also improved wireless access on the campuses and in off-site locations. The wireless access allows students to use mobile devices in and around PCCs. Second, the wireless connections and better access at the library also make it easier for students and the public to obtain career information outside of the Career Resource Centers.

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.

SCTCS has taken steps to ensure sustainability over the next two to three years. SCTCS's central office is engaging in collaborative policy discussions with the state to meet budgetary obligations for maintaining the infrastructure upgrades. Charleston, Dorchester, and Berkeley counties will share the ongoing costs of operating and maintaining the broadband expansion through a nominal tax increase to county residents. TTC college campuses are located within the three counties in South Carolina. TTC also received a $16,000 grant from Google to help sustain a portion of the PCC training staff after the grant period ends. TTC has also partnered with Google in its implementation of TechSat in the PCC. This program offers science, technology, engineering, and math classes and workshops for youth ages seven to sixteen. A Google data center is located just a few miles from the Berkeley PCC. ASR will follow up with SCTCS in the second quarter of 2014 to learn more about the sustainability of the project.

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, “South Carolina State Board for Technical and Comprehensive Education Fact Sheet”, 2010, http://www2.ntia.doc.gov/files/grantees/SC_State_Board_Factsheet.pdf.

[2] National Telecommunications and Information Administration, “South Carolina State Board for Technical and Comprehensive Education Fact Sheet.”

[3] National Telecommunications and Information Administration, “Post-Award Monitoring (PAM) Database 2013-03-11” (Washington, D.C.: Distributed by National Telecommunications and Information Administration, 2013).

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

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

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

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[11] 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.

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[13] South Carolina Technical College System, “Our Vision, Mission, and Values”, 2013, http://www.sctechsystem.com/mission.html.

[14] Trident Technical College, “SCTCS - Trident - St Pauls Parish Presentation.pdf” (South Carolina Technical College System, 2013), email attachment, April 28, 2013.

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

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[17] National Telecommunications and Information Administration, “Post-Award Monitoring (PAM) Database 2013-06-11.”

[18] National Telecommunications and Information Administration, “Post-Award Monitoring (PAM) Database 2013-06-11.”

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

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

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

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

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

[24] Trident Technical College, *PCC - Trident - St Paul 2012 Survey Report*, 2013, email attachment, April 28, 2013.

[25] Trident Technical College, “SCTCS - Trident - St Pauls Parish Presentation.pdf.”

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

[27] Trident Technical College, “SCTCS - Trident - St Pauls Parish Presentation.pdf.”

[28] The Recovery Accountability and Transparency Board, “How Jobs are Calculated,” *Recovery.gov* (Washington, DC, January 15, 2010), http://www.recovery.gov/News/featured/Pages/Calculator.aspx.

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

[30] South Carolina State Board for Technical and Comprehensive Education, *SC State Board for Technical and Comprehensive Education Reach for Success Application, Part 1*, *BroadbandUSA: Connecting America’s Communities*, August 16, 2009, http://www2.ntia.doc.gov/files/grantees/south_carolina_state_board_application.pdf.

[31] South Carolina State Board for Technical and Comprehensive Education, *SC State Board for Technical and Comprehensive Education Reach for Success Application, Part 1*.

[32] South Carolina State Board for Technical and Comprehensive Education, *SC State Board for Technical and Comprehensive Education Reach for Success Application, Part 1*.

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

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

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

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

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SCTCS reported prior-to-BTOP speed statistics for thirty-five unique PCCs and after-BTOP speed statistics for sixty-eight unique PCCs in its 2010 to 2012 APRs. The evaluation study team was

able to determine exact matches for twenty-three PCCs, allowing for a direct before-and-after comparison of connection speeds. Across these twenty-three PCCs, connection speeds increased from 75 Mbps to 136 Mbps over the grant period.

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

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Glossary

Acronym	Definition
AIM	Advanced Inventory Management
APR	Annual Performance Progress Report
ASR	ASR Analytics, LLC
BTOP	Broadband Technology Opportunities Program
CCI	Comprehensive Community Infrastructure
ERP	Enterprise Resource Planning
FCC	Federal Communications Commission
GED	General Equivalency Degree
Mbps	Megabits per second
MTC	Midlands Technical College
NTIA	National Telecommunications and Information Administration
PCC	Public Computer Center
PPR	Quarterly Performance Progress Report
Recovery Act	American Recovery and Reinvestment Act of 2009
SBA	Sustainable Broadband Adoption
SCTCS	South Carolina Technical College System
TTC	Trident Technical College
UTAUT	Unified Theory of the Acceptance and Use of Technology
VNN	Video News Network

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