

South Carolina State Educational Technology Plan

2014-2016



Reimagining Education



STATE OF SOUTH CAROLINA DEPARTMENT OF EDUCATION

Mick Zais
Superintendent

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Citizens of South Carolina

Our state's future and prosperity will be built by today's students. And it will depend upon the ability of South Carolinians to use computers and digital information systems. So it's critical we have a K-12 education system where students learn to maximize the potential of these amazingly powerful tools.

The *South Carolina State Educational Technology Plan, Reimagining Education*, sets forth the principles and standards that should guide further integration of digital information systems into South Carolina's K-12 education system from January 1, 2014 to December 31, 2016. The central focus of the plan addresses how South Carolina students can most effectively use technology.

This plan recognizes that teachers and administrators must first understand how to use technology to support lesson plans. And it is based on the premise that technology can help level the education playing field. Additionally, because of the differences among local school districts, the importance of a cohesive, statewide advisory plan is clear.

Contributors to the plan included district technology directors, school administrators, teachers, business representatives, student family members, and state agencies, including the South Carolina Department of Education.

The goal of this plan is to ensure that South Carolina's students and educators are technologically proficient. With parents, teachers, and students working together, we can make South Carolina a place where technology and the future come together.

Sincerely,

Mick Zais, Ph.D.
State Superintendent of Education

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Executive Summary

The South Carolina Department of Education presents this state educational technology plan to support the goals, policies and standards of the South Carolina Board of Education. This plan serves as a guide for school districts to revise, create, and implement standards and learning objectives for the next 3 years. The plan was created in collaboration with representatives from multiple school districts and other state agencies. It is intended to serve as a framework for local districts' technology plans. Much of this content coincides with documented highly successful practices from other state and federal agencies including but not limited to the following:

- **Universal Service Fund (E-Rate)**
- **Next Generation Content Standards**
- **National Educational Technology Plan**
- **Southern Regional Educational Board (SREB)**
- **U.S. Department of Education (USED)**
- **International Society for Technology in Education (ISTE)**
- **Consortium for School Networking (CoSN)**

South Carolina's schools have made significant progress over the last four years integrating technology into the learning process. The nature of the state's education operating model provides the local school districts with a high degree of autonomy. This document will highlight the many benefits and challenges of this autonomy to help the reader understand what is working well and where attention should be focused in the coming years. This analysis is aimed to help the districts and schools better acquire, integrate and support technology in the learning process.

There is already an increased level of attention on ensuring that students and educators have equal access to the latest technological tools and techniques available in the marketplace regardless of location or economic situation. This plan will attempt to provide useful guiding principles to apply in order to make this technology both effective and efficient.

*Without continual growth
and progress, such words as
improvement, achievement,
and success have no
meaning.*

Benjamin Franklin¹

¹ Benjamin Franklin, (n.d.) Retrieved from <http://www.goodreads.com/quotes/103000-without-continual-growth-and-progress-such-words-as-improvement-achievement> on Dec 19, 2013

Responding to the Rate of Change

South Carolina has historically created five-year educational technology plans, the last of which was delivered in January of 2009. Since then there have been dramatic advances in how technology is leveraged in the classroom. As a result, the authors of this plan recognize the need to change the mindset of how education technology plans are written and utilized by school districts across the state. This plan will differ from its predecessors in two specific ways. First, it will strive to create a more effective implementation of the guiding principles and recommendations that it proposes by first fully understanding the challenges that face education in the state. Second, it will adjust expectations on timeline, as it is no longer realistic to create technology plans which attempt to predict and mitigate the technology challenges which may arise four or five years in the future. Technology's rate of change is both too rapid and too constant for anyone, even notable futurists, to accurately predict what the top Information Technology priorities will be in 48 to 60 months. To address this challenge and remain relevant, this plan will focus on specific steps that can be taken over the next 36 months to address technology challenges in South Carolina schools and districts.

Lessons Learned Discussion

The core team responsible for overseeing the creation of this technology plan wanted to gain insight into how the past educational technology plans were written and ultimately utilized. Multiple discussions took place with key stakeholders and a common theme quickly came to light. There had to be wide audience participation, and the plan needed to be written as a framework of suggestions, successful practices, lessons learned and flexible solutions based on the diverse needs of the districts. Historically, the plan was often utilized by a limited number of districts due to the manner in which it was written with few measures of success or "next steps" to gauge the usefulness of the end product.

Initial Data Gathering

The data gathering phase of this project included more than forty interviews which were conducted both in person and by telephone. Several common themes emerged from these conversations which helped to shape the remaining project activities and ultimately how the 2014 Educational Technology Plan would be presented. A series of online surveys and one-on-one interviews were used to gather basic data points from a wide audience of participants. The team also reviewed the results of previous surveys and information gathering activities including the Smarter Balanced Readiness assessments and other tools used to track technology implementation across the state of South Carolina. While these surveys were taking place, the core team identified dozens of individuals to begin requirements-gathering activities. These individuals included administrators, state agency representatives, technologists, teachers, parents of students and a sampling of students. The intent of these initial discussions was to identify additional resources that could help with the requirements-gathering activities and to help group the findings into general themes.

The following categories represent several of the themes and categories which were frequently raised:

- **Infrastructure** - network, desktops, email systems, websites, printers/copiers, servers, databases, tablets, personal devices, mobile devices
- **Security** - network security, internet security, data security, mobile device security
- **Classroom Technology** - interactive white boards, portals, projectors, tablets, personal devices, computers, software applications, websites
- **Professional Development** - what is working and not working plus suggestions for training on new technology, industry-accepted and highly effective practices
- **Technology Support** - what is working and not working along with insight into potential improvements
- **Virtual Learning** - how it's delivered, who has access, what is offered and what is needed to expand its availability and value proposition
- **Collaboration Opportunities** - a strong desire for improved collaboration between districts and the state, district-to-district collaboration, schools within a district and businesses and agencies (this would include South Carolina Assistive Technology Program (SCATP)), South Carolina Autism Society, Pro-Parents and other organizations.

Regional Site Visits

During interactions with state and regional representatives it was important to express the point that this plan was *their* technology plan and it was apparent that face-to-face discussions would be needed to help solidify this relationship, encourage participation and ultimately fuel adoption. Several regional visits were scheduled across the state to allow districts multiple opportunities to meet the core project team and expand their involvement. For those district representatives who were unable to attend, site visits were offered to meet with them one-on-one if desired. It was important that collaboration and open, honest dialogue be the foundation for the writing of this plan.

Benchmarking

A great deal of time was spent identifying what technology is currently in use across South Carolina's schools. Effort was made to identify the different categories of technology, brands, versions and number of schools using the technology to help establish basic benchmarks. It is important to point out that South Carolina is already utilizing many of the leading educational technology solutions available on the market. Analysis was made to learn how the products were used and to compare South Carolina to other states in different areas. These findings are intertwined throughout this document to provide insight into the different products and how they are currently used.

Iterative Writing Process

The plan's authors followed an iterative writing process which included several draft versions along with dedicated review and editing phases. The intent of this process was to involve a wide audience in the writing, editing and formatting of this document to help ensure a proper balance of perspective was achieved. Districts and schools within a district see the same challenge from different perspectives. It was important that these perspectives were balanced with state and national policies to create a plan that could be seen as objective and ultimately useful as a resource in the writing of local technology plans.

Introduction

South Carolina’s educators recognize the increasing role of technology in today’s classroom. Today’s students are technologically savvy and often know more about technology than teachers. One of the keys to successfully integrating technology into a teacher’s standards-based curriculum is professional development/training associated with the new technology. It is imperative that teachers and administrators fully understand how to utilize technology and intertwine it with the lesson plan before the students are involved. Today’s students are motivated to use modern technology tools to explore areas of interest, collaborate on projects, solve classroom problems, communicate inside and outside the classroom and learn at their own pace.

One of the main challenges across the state is the existence of “haves” and “have-nots.” These tiers exist between districts, within districts, within schools and even within the classrooms, resulting in numerous challenges to the teaching process. Several of these challenges can be met by using technology first to facilitate transformation in the classroom and then to provide ongoing support for these transformative improvements. Technology can be a great equalizer and it is imperative that innovative ways be identified to utilize technology to help balance the education playing field.

South Carolina has a unique relationship between the State Department of Education and its 86 unique school districts. The independent school districts are largely autonomous in their assessment, acquisition, implementation and usage of technology. The role of the Department of Education is primarily advisory, with little governance currently in place to influence what technology is used and how it should be used. As a result, there is a high degree of variation between school districts (and within school districts) that has created a unique set of circumstances that should be addressed to improve how technology is adopted and implemented across all of South Carolina’s public schools.

The State’s Educational Technology Plan is used primarily as a framework of tools, techniques and proven, effective practices for individual districts to leverage, if desired, when writing local technology plans. However, the districts are not required to utilize the state’s plan. This plan will identify opportunities to expand the collaborative opportunities between state agencies and independent school districts and hopefully serve as a catalyst for technologists across all of the state’s educational facilities to work together to improve the availability and usage of technology in South Carolina’s classrooms.

There are several significant changes in the way technology is being applied and integrated today versus five years ago when the last educational technology plan was released. These changes are evident across most of the state’s school districts and the resulting trends are continuing if not escalating in rapidity.

- **1:1 Computing** - The decrease in the costs of personal computers/tablets and personal devices coupled with the heavy reliance on computers in today's curriculum has led to a strategic push towards one computer for every student in the school. Many schools start with their high school students to ensure every student has a personal computer. Then the middle schools are targeted and ultimately the elementary schools. The reliance on personal computing devices in today's classroom is significantly more prevalent than in 2009 and moving forward this reliance will only grow in importance.
- **Mobile Devices** - These devices have continued to evolve and increase in prevalence in today's classrooms. The enhanced capabilities of these devices and their relatively low costs have increased their presence in schools, creating additional IT challenges in the areas of Security, Networking and Support. The marketplace is trending toward heavy reliance on mobile devices and plans need to be implemented to ensure classroom and support models are prepared to integrate mobile devices into the learning process.
- **Cloud Solutions** - Cloud-based services are dramatically more prevalent than they were five years ago. Costs associated with these tools have plummeted, security concerns have been addressed and the capabilities of many of these products and services have expanded exponentially. Districts and schools now have the ability to customize the education process by picking and choosing tools that meet the needs of specific classrooms and students. The reliance on cloud solutions will expand and the implications associated with supporting cloud solutions will need to be factored into the overall Information Technology support strategy.
- **Online Assessments** - The past five years have seen a dramatic shift in the role that nationally approved curriculum assessments play, what these assessments are designed to evaluate, and how these test instruments are administered. The result is a need for both increased computer-to-student ratios and higher capacity networks in South Carolina schools.
- **Professional Development** - The content and frequency of formal professional development has changed dramatically over the last five years. Rapidly changing technology requires a thoughtful approach to keeping teachers and administrators properly trained and prepared to integrate the technologies into the classroom.
- **Wireless Networking** - This technology has continued to expand, (versus wired networking). The increasing use of mobile devices has caused an unrelenting pressure to provide not only more wireless access points in classrooms but also greater throughput for each connected mobile device.

An important basis for this plan is the fact that in virtually all South Carolina schools, access to broadband communications has been achieved, and continues to improve. Now the focus must be to expand the capacity of those broadband connections to meet the continuing need that arises when real applications of this infrastructure begin to take place. These improvements in connectivity have opened up enormous possibilities for learning. The central focus of this plan addresses how South Carolina learners can make the fullest, wisest, most powerful use of this opportunity while addressing the existence of the “haves” and “have-nots.”

The Role of the National Education Technology Plan

South Carolina has worked in the past to ensure the state's educational technology plans were properly synchronized with federal guidelines surrounding education. Since the 2009 plan was released the U. S. Department of Education has created the National Education Technology Plan (NETP). This plan calls for applying advanced technologies to the state's education system to improve student learning, accelerate and increase the adoption of effective practices, and use data and information to effect continuous improvements. The NETP presents five goals, with recommendations, for states and districts to consider when examining how technology can and should be integrated into the education process. These five goals encompass the primary elements of a learning process that is effectively imbued with and supported by technology: Learning, Assessment, Teaching, Infrastructure, and Productivity.

(<http://www.ed.gov/technology/netp-2010>)

The six primary goals of the NETP are as follows:

- **Learning: Engage and Empower:** All learners will have engaging and empowering learning experiences both in and out of school that prepare them to be active, creative, knowledgeable, and ethical participants in a globally networked society.²
- **Assessment: Measure What Matters:** The education system at all levels will utilize the power of technology to measure what matters and use assessment data for continuous improvement.³
- **Teaching: Prepare and Connect:** Professional educators will be supported individually and in teams by technology that connects them to data, content, resources, expertise, and learning experiences that can empower and inspire them to provide more effective teaching for all learners.⁴
- **Infrastructure: Access and Enable:** All students and educators will have access to a comprehensive infrastructure for learning when and where they need it.⁵
- **Productivity: Redesign and Transform:** The education system at all levels will redesign processes and structures to take advantage of the power of technology to improve learning outcomes while making more efficient use of time, money, and staff.⁶
- **Research and Develop: Innovate and Scale**⁷: The education system will use a combination of continuing grants, effective practices and innovations from areas outside education, as well as active participation of experts from fields such as business and entertainment technology to find, develop and implement effective improvements to education efforts which can be maintained and supported on a national scale.

A learning environment has to be structured to achieve the ultimate goal of education: The educated person.

Ibrahim Hefzallah

² "The National Education Technology Plan, *Transforming American Education: Learning Powered by Technology*". p. xvi

³Idem, p. xvii

⁴Idem, p. 39

⁵Idem, p. 51

⁶Idem, p. 63

⁷Idem, p. 75

South Carolina's 2014 Educational Technology Plan will use the NETP's goals as a foundation for any recommendations and will periodically highlight successes in specific areas that exemplify highly effective practices currently in place within a particular district and/or school. There are several distinct factors that state educators use as a baseline for all decisions pertaining to technology:

- Professional development policies, procedures and processes that are tailored to support teachers at all levels with the integration of technology into the overall curriculum.
- Multi-tiered technical support models that help the districts, schools and staff plan for and implement new technologies.
- Equal levels of access to digital technologies by students, teachers, administrators and technologists.
- Integration of the technical support models at the state, district and individual school levels to help ensure stable and secure learning platforms.

South Carolina is currently following many of the steps currently outlined in the National Education Technology Plan. Success stories will be highlighted throughout the remainder of this document to identify areas where districts, schools and teachers have incorporated leading practices into daily job functions and have successfully utilized technology to help better deliver education to the children in South Carolina. This plan will identify what is working, along with examples of what is not working, and it will attempt to identify possible solutions to help districts and schools improve in targeted areas. The remainder of this document will incorporate many of the National Education Technology Plan's key areas into the plan and will provide insight into the following categories where applicable:

- How South Carolina can strengthen leadership and collaboration
- Consider Innovative Budgeting
- How the state can expand and improve teacher training
- Expanded support for e-Learning and virtual schools
- Sense of urgency around expanded broadband access
- Implications of expansion of and reliance on digital content
- Importance of secure and integrated data systems

The development of the South Carolina Educational Technology Plan offers an opportunity for state agencies, local school districts, local businesses and technologists to make greater use of technology to impact the education process in a positive manner. Many stakeholders were involved in the analysis and planning of goals and objectives associated with the different content areas of this document. Through this iterative decision-making process, stakeholders helped identify the objectives, targets, and strategies that could be shared and ultimately used by the districts to augment their own district level technology plans.

Educational Technology Plan Framework

The remainder of the document is broken down into a useful format that will allow school districts to choose the specific content they wish to leverage in their local technology plans. During planning activities, participants requested a breakdown into distinct categories to make this document accessible for those readers whose interest may be restricted to particular subject matter areas. The following diagram provides an overview of how this document is laid out. Each of the categories includes focused data points in the following areas:

Classroom Technology	Infrastructure & Security	Professional Development	Research & Collaboration
Goals			
Summary of Findings			
Recent Progress			
Spotlight on Success			
Challenges			
Improvement Opportunities			

Student Learning / Classroom Technology

Goals & Objectives

All districts across the State of South Carolina are striving to improve student learning through technology.

Objectives for 2016 and Recommendations

Digital content will be available before, during and after school to support teachers, students, families, administrators and technologists.

- Expand cost-effective access to online classes and other digital content through collaborative development and purchasing agreements.
- Incorporate digital content into instruction to decrease the dependency on print materials.
- Develop policies and procedures and seek additional funding opportunities to provide digital resources to educators, students, parents, and communities before and after school hours.
- Expand collaboration with public libraries, state colleges, community colleges and other local organizations to provide anytime, anywhere access.

We must leverage technology to provide engaging, powerful learning experiences for all students, giving them authentic tools to solve real-world problems and opportunities to become better prepared for our globally competitive workforce.

Karen Cator

Former Director of the Office of Educational Technology, U.S. Department of Education

Digital content will be integrated into all learning processes that educators deem appropriate.

- Establish agreed-upon policies, procedures and evaluation criteria for developing electronic toolkits to provide lesson seeds and other instructional resources that incorporate technology and information literacy and that are aligned to South Carolina's State Approved Curriculum.
- Identify and promote instructional delivery models that use current and emerging technologies to support student learning. Take success stories already in place across South Carolina and expand them.

Students and staff will have expanded access to education materials.

- Explore partnerships with existing local and state libraries.
- Expand the use of portals and useful websites such as SCETV.
- Provide expanded technical assistance and support at the state level, district level and school level. The new technologies will require additional support to ensure that online courses and other digital content are available for students.
- Expand and enhance access for students and staff to online training opportunities and

classroom training. Regional classes would be useful and expanded online classes could fill in the gaps.

All students will have access to educational materials that incorporate universal design.

- Increase collaboration across all school districts to identify and publish “effective practices” in implementing digital content that accommodate diverse learning needs of all students.
- Expand access to assistive technology to students whose Individual Education Programs and 504 plans recommend or require these devices.

All students will demonstrate mastery of technology literacy by the end of eighth grade.

- Ensure that district technology plans include strategies that incorporate technology literacy standards for students, teachers and technologists. Curriculum should be examined and technology plans created to ensure the curriculum can be properly taught using the agreed upon technology.
- Determine a statewide process to collect quality, consistent data in measuring the progress of students in mastering the technology literacy standards. These should be synchronized with the federal guidelines in this area.
- When rolling out new technologies a successful strategy is to identify pilot districts, schools and/or classes to learn the new technologies and work out any challenges before rolling out to the masses. A well thought-out approach to rolling out new technology will help reduce the risks associated with integrating the technology to other systems while providing teachers and support staff adequate time to properly train on the new tools.
- Create a series of metrics to monitor the usage and value of technology.
- Adjust the use of technology as needed to ensure the education process is not impacted negatively by technology.
- Implement accountability measures.

Summary of Findings

- Many districts across South Carolina are currently doing an excellent job leveraging technology in the classroom. Many of the nation's best educational technologies are currently in place at various locations across the state.
- South Carolina has done a good job proactively creating purchasing agreements with many of the educational technology vendors to simplify the acquisition of products and services.
- Many of the districts rely very little on support from the state when assessing, implementing or supporting classroom technologies.
- There is minimal collaboration between school districts when it comes to classroom technology. There is a strong desire to collaborate and share examples of different technologies that have been implemented along with lessons learned. These will be addressed later in this section.
- There are obvious signs of “haves” and “have-nots” across South Carolina when it comes to technology and how it is incorporated into the classroom.
- There is little standardization across districts when it comes to classroom technology, which is not necessarily a bad thing. There is a great deal of value in allowing districts and the schools within a district autonomy when it comes to identifying and utilizing technology. There is also a downside to this strategy. Opportunities to improve in this area will be identified later in this section.
- There is evidence across the state that students desire the use of technology and have the ability to adopt it successfully when properly instructed.
- There is a direct correlation to a student's success utilizing technology and a teacher's aptitude for that technology. This ties directly into professional development and training needs.
- The rollout and support models associated with classroom technology directly impact the teacher's ability to learn the product, use the product, educate their students using the product and achieve success in the classroom.
- Several school districts have had greater success than others in evaluating and integrating classroom technology. The key to this success partially lies in effective product evaluation. When products are simply acquired and rolled out without a dedicated evaluation period, successful classroom integration rates drop. The districts that take a more methodical approach to product analysis and rollout on a limited scale ultimately had greater success and maximized that product's value. Whether using a majority vote or another mechanism to ultimately decide which technology makes the most sense for a specific district is up to each district to determine. However, standardization significantly reduces the risks associated with training staff and supporting the technology.
- The majority of school districts across South Carolina struggle to support current technology levels. They are continually operating in a “reactionary” mode and have little time to proactively dedicate to more value-added activities such as analyzing different technologies and how to implement them. Many rollouts are rushed, leading to training and support challenges and issues, and ultimately slowing adoption rates.

Recent Progress

School districts and state agencies have made demonstrable progress in acquiring and implementing technology for the classroom since the last Educational Technology Plan was released. This section will highlight examples of the many different technologies currently in use across the state. The intent of this section is to provide the reader with a summary of the different categories of technology that exist and the products and services that are currently being utilized. This is not an exhaustive list but it does represent a majority of the different products currently in use across the state. It is important to point out that this plan makes no determination as to whether one product is better than another. This information is for reference only and is provided in alphabetical order.

Category	Products Currently in Use
Interactive Whiteboards	Hitachi Promethean Smartboard
Video Monitors & Projectors	Monitors Sanyo Epson UStream Interactive LCD V-Bricks IPTV
Document Cameras	Acer Casio Epson Hitachi Mitsubishi NEC Optima Samsung Sharp Sony
Portals & Websites	Edmodo FrontPage Google products Office 360 MS SharePoint Webquest

Category	Products Currently In Use
Laptop Computers	Acer and Asus Apple Dell HP IBM/Lenovo
Mobile Devices	Chromebooks Droid Hand Held Devices I-Pads and I-Touch MP3 Players for Audio Lessons Windows devices
Distance Learning Carts	Chromebook and iPad carts Windows Computer carts
Classroom Amplification Technology	Lightspeed SMART Audio
Virtual Learning	Moodle via South Carolina Virtual High School (SCVHS) and other tools such as Front Row are used to deliver most virtual learning.
Libraries	School districts are proactively collaborating with their teachers and public libraries to make information and access to computers and information more readily available.

Spotlight on Success

Kershaw County (KCSD)

In 2013, the Kershaw County School District (KCSD) needed to upgrade computer labs in all of its middle schools but had a limited budget. After analyzing available options, the district chose the NComputing desktop virtualization device, which provides the same user experience of a desktop computer without the added hardware and power consumption.

This device can be connected to a monitor, keyboard, mouse, microphone, speakers, network cable and two other USB devices, and the virtualization software can be run on a server. From a single location, the NComputing device can be managed, and software can be updated. The user experience can be customized for each device or the same setup used for all as in a lab setting.

KCSD installed 350 NComputing desktop replacement devices for the computer labs in its middle schools and one media center and experienced an immediate savings of \$160,650 in hardware costs. The devices will provide continued savings to the district in power consumption and cooling costs throughout their term of use.

Challenges and Improvement Opportunities

Many of the state's school districts are due a tremendous amount of credit for proactively assessing, acquiring and implementing some of the leading classroom technologies available in the marketplace. The intent of this section is to highlight the challenges that have already been identified and provide targeted recommendations for mitigating or even eliminating the issues associated with classroom technology. A diverse audience who participated in several rounds of surveys, one-on-one and group discussions created this list. Select challenges are presented in random order and the recommendations below are offered as potential solutions. Further analysis should be undertaken to ensure the recommendations are appropriate, so there are no unintended consequences.

Challenges and Possible Solutions

Lack of standardization of classroom technology across and within districts makes it more challenging for entities to offer support services. Currently the sheer number of different - often competing - technologies in use within districts makes it extremely challenging for support staff to adequately provide training and support services.

Placing strong emphasis on across-the-board standardization during the new technology evaluation process will reduce support challenges, simplify training, and increase the districts' abilities to support technology in the classroom, minimizing the need for outside assistance.

Only a small percentage of school districts appear to have formal strategies for standardizing classroom technology. There is a great deal of autonomy within the districts and while there are many benefits to this, South Carolina's budget constraints make it very challenging to adequately staff a support organization to manage multiple technology platforms.

Formal evaluation processes to examine different classroom technologies will facilitate standardization while preserving districts' desired degree of autonomy. Establishing these formal processes will streamline multiple other activities, including training and resource-sharing, and ultimately will expand the support and services available for each school using the standardized technology.

Limited collaboration between school districts restricts educators' abilities to share lessons learned. There were many examples given to the writers of this plan where one district had negative experiences with specific technology and they could have benefited greatly from suggestions from their peers in other districts.

Information-sharing portals or other communication vehicles allow the districts to collaborate between districts, within their own districts, with state agencies and potentially with commercial resources that might be able to offer services in a particular area. This solution can and should be easy to use and manage by a committee of district representatives with

assistance (as needed) from state agencies.

Various state agencies have limited knowledge of the different technologies currently in use across the districts. This makes it difficult for state agencies to proactively provide training and support services.

Richland School District Two has a rich history of technology innovation and continues to be a leader in the transformative uses of technology in the classroom. We have successfully implemented 1:1 computing for all students in grades 3 through 12 and we're seeing a positive impact on student achievement and engaged learning as a result of our digital conversion. As a Project RED Signature District, we engage in continuous program evaluation to ensure that our technology initiatives are successfully implemented at the school and district level. Our new innovation incubator provides school teams with the resources and support to explore new instructional practices and technologies that can be replicated on a larger scale. Careful planning, stakeholder involvement, and continuous quality improvement are the cornerstones of all technology initiatives in Richland Two.

Dr. Debra Hamm, Ph.D.

Superintendent, Richland School District Two

The many surveys and assessment tools currently being used across the state are somewhat addressing this issue. It is up to the state to ask the right questions, and it is up to the individual districts to provide accurate responses and data points in a timely manner.

There is a perception that some school districts are inadequately staffed to support the ever-increasing use of technology within the classrooms. This is directly impacting the teachers' ability to educate their students.

The support model for classroom technology needs to be analyzed and potentially expanded. Technology is not optional in today's schools. Technology support staff are widely seen as some of the most valuable resources within a school district and in many cases, the staffing model associated with supporting classroom technology is inadequate.

A possible solution for individual schools within a district lies in increased collaboration based on geographical location. Schools can possibly create staffing models allowing them to utilize technology support staff from other schools within their district or potentially from another district. These new staffing models could potentially free up select support staff to work on the more challenging and value-added services while allowing others to address more routine issues.

Another possible solution that other states have already implemented is to utilize the students themselves for the first tier of technology support. There is direct evidence that many issues that arise over the course of a typical school day are easy to fix and occur in large volumes.

Some of these could potentially be resolved within the classroom by a tech-savvy student who is provided basic training by the school (or district) Information Technology personnel. Parents would likely be excited about their student's learning enhanced technical skills and many students would relish the opportunity to learn new skills and help their fellow classmates. This model is working successfully in many states and there are even success stories of it working in South Carolina. It is important to point out that this solution would not lead to reduced staff at the school or district level. It is simply a tool to help address technology support needs more effectively while engaging students in this vital process.

Historically the state has offered a large number of technology training and support services. These services have been cut or greatly reduced over the last few years due to state budget cuts. The resulting gulf in professional development and support that exists between the state agencies and the districts is vast and leads directly to a large number of operational issues that could potentially be resolved with a more collaborative relationship.

Identify meaningful ways for the state and districts to enhance collaboration with the technology planning, acquisition, implementation, professional development, and potentially support of classroom technology.

SCDE Assistive Technology Specialists

The mission of Assistive Technology Services (ATS) is to provide assistive technology support, training, consultation, equipment, and technical assistance to educators who teach students at risk of academic failure and students with disabilities.⁹ An Assistive Technology Specialist provides the following services.

- Disseminate exemplary training opportunities of assistive technology within the assigned regions and at statewide events such as SC EdTech and the SC Assistive Technology Expo.
- Offer meaningful sustained professional development using a variety of delivery strategies.
- Provide trainings that focus on access to all academic standards using assistive technology.
- Assist teams with assistive technology proven practices, policies, and procedures.
- Encourage statewide educator, student and community involvement via electronic communications and other media.
- Maintain Listserv for use to disseminate information regarding assistive technology.
- Provide district consultation on how to create an educational environment that incorporates a variety of technologies used in multidisciplinary tasks.
- Collaborate with districts on assistive technology considerations and their implementation in the Individualized Education Plans (IEPs).

⁹ "Executive Functioning Getting Your Students Organized!" (n.d.) Retrieved from SC Assistive Technology Program on Web. 19 Dec. 2013, http://www.sc.edu/scatp/expo/expo12handouts/Executive%20Functioning_handout_03.05.12.pdf

- Collaborate with districts on creating and maintaining assistive technology teams.
- Disseminate information regarding effective practices, Universal Design for Learning (UDL), and recent innovations in assistive technology.
- Actively participate in ongoing sustained professional development on assistive technology.

Assistive Technology Team Recommendations for Districts

- In addition to the student, Assistive Technology (AT) Teams may include teachers, teacher aids, student aids, psychologists, IT professionals, occupational therapists, physical therapists, speech-language pathologists, and other significant school personnel who can provide contributing information.
- Each school district provides Assistive Technology (AT) professionals time beyond working with their caseloads to perform a multi-disciplinary evaluation.
- Assistive Technology (AT) Team members are provided time to attend trainings on assistive technology either on location in SC or via webinars.
- Assistive Technology (AT) Team members collaborate with community service providers to ensure consistency in device selection and treatment plans.

The Assistive Technology Act of 2004 defines an assistive technology device in the following way:

...any item, piece of equipment, or product system, whether acquired commercially, modified, or customized, that is used to increase, maintain, or improve functional capabilities of individuals with disabilities. (29 U.S.C. Sec 2202(2))¹⁰

What Can Assistive Technology Do?

The Individuals with Disabilities Education Act (IDEA) 2004 is the federal law that guides how schools provide special education and related services to children with disabilities. IDEA defines a learning disability as, “a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, that may manifest itself in an imperfect ability to listen, think, speak, read, write, spell, or do mathematical calculations, including conditions such as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia.”

With personal effort, support from others and appropriate tools (such as assistive technology), students with learning disabilities can be more successful in school, at home, and at work. When considering assistive technology in any situation, the focus should be on what the device or software does for a person, not on the device or technology itself. Assistive technology is only a support to “get the job done” more independently. It can reduce a student’s reliance on parents, siblings, friends and teachers, helping them with their transition into adulthood, by reducing anxiety and fostering self-esteem.

¹⁰“Autism and Assistive Technology - Home.” *Autism and Assistive Technology*. (n.d.). Retrieved from <http://www.autismandat.com/>. Dec. 19, 2013.

Spotlight on Assistive Technology

An eight-year-old student with multiple disabilities visited the SC Assistive Technology Resource Center with his parent and school Assistive Technology (AT) team*. The goal was to find a reliable switch access method for the student to use his communication device. After trying many switches, the student demonstrated great success with a chin switch. The AT Team said that they would concentrate on the student's communication skills for a while prior to introducing him to literacy. SC Assistive Technology Program (SCATP) staff demonstrated that the chin switch could connect to a computer to interact with a website of pre-made books with voice output. After several attempts, the student demonstrated the ability to independently turn the pages of an electronic book that read out loud to him. He was very happy to be able to do this and the AT Team realized that the student could work on several skills using his chin switch.

* This example of the practical benefits and applications of assistive technologies was provided by Carol Page from USC SCATP.

Infrastructure and Security

Goals and Objectives

Provide a robust, secure and cost effective technical infrastructure that improves equitable access to appropriate technologies for all schools in South Carolina.

Objectives for 2016 and Recommendations

All schools will provide:

- One high performance computer per teacher for administrative and instructional use.
- One high performance computer or computing device per student at the secondary level and at least a 2:1 student-to-computer ratio at the elementary school level to provide on-demand, equitable access to a variety of technological tools.
- Access to a variety of technology devices to maximize student learning.
- One computer projection device or display unit per classroom and other instructional areas.
- A secure and proactively monitored computing environment to ensure safe access and information integrity.
 - Reassess strategies for procurement/contract vehicles, technology refreshment, maintenance, adequate technical support, and upgrading of hardware and software at the state and district levels. Revise and implement modern leading practices where appropriate.
 - Agree to the definition of “high performance” among all districts. It is essential that South Carolina’s infrastructure move away from the “minimum requirements” mentality and strive towards “recommended requirements” to optimize the use of classroom and other technologies.
 - Collaboration across the districts to coordinate technology purchases will greatly reduce costs and allow districts to do more with their limited budget dollars.
 - Review and update school construction and telecommunications standards and prepare infrastructures for a one-to-one learning environment; develop guidelines for recommending funding investments for infrastructure.
 - Explore strategies, such as Total Cost of Ownership (TCO), and Return on Investment (ROI), and Value of Investment (VOI) that assist with cost savings for technology planning. Many states are using these financial statistics to help justify additional Information Technology spending at the local school board and legislative levels.
 - Publish (and continually maintain) highly effective practices that use new and emerging

We need technology in every classroom and in every student and teacher’s hand, because it is the pen and paper of our time, and it is the lens through which we experience much of our world.

David Warlick

technologies and devices to extend the flexibility, accessibility, usefulness, and cost-effectiveness of infrastructure.

- Develop guidelines for installing equipment and configuring networks for maximum efficiency and effectiveness. The districts and state should work collaboratively to keep the documentation current and accessible.
- Assess long-term connectivity and bandwidth needs and develop strategies for meeting them. This includes moving away from one current way of thinking about wireless technology. Simply having “coverage” is no longer a solid strategy. Density studies are required at the school level to 1) ensure the number of systems accessing the network do not degrade the network’s performance and 2) are necessary to ensure the optimal use and yield of wireless investments.
- Review and revise Acceptable Use and Internet Safety policies to reflect the current online environment. A heavy focus on mobile devices is suggested.
- Monitor compliance with the federal Children’s Internet Protection Act (CIPA) to ensure eligibility for federal funds.

State agencies and school districts will strategize to determine if there are certain Technology functions that can be standardized (or more standardized) to allow for better collaboration and possibly centralized support.

- Examine how disaster recovery services are currently provided at the district and school levels and ascertain what (if anything) the state can do to help encourage or support disaster recovery (DR) initiatives.
- Computer maintenance and refresh cycles are no longer optional. They are mandatory to ensure properly functioning education technology. Many of the districts’ refresh strategies pose significant risks to school technology effectiveness within those districts. A standardized refresh cycle would benefit all stakeholders.

Technology isn’t an option that schools may or may not choose for their kids. Technological competency is a requirement for entry into the global economy — and the faster we embrace it, the more we maintain and secure our economic leadership in the 21st century...

Education Secretary Arne Duncan

All school districts will have policies and procedures in place to address equivalent access to technology-based resources for students. This should coincide with any state and federal legislation to ensure proper adherence to the statutes.

- Further analysis to determine which districts (and schools within districts) continue to fall short on the necessary amount of network bandwidth. It’s important to once again note the difference between “minimum” requirements and “recommended” requirements.

- Policies should be written to identify the minimum amount of network bandwidth per student necessary across all districts to help ensure equal access to standard technology.
- Proactive analysis along with targeted recommendations are necessary to help school districts and schools within specific districts that lag behind their peers in the availability and/or adoption of technology. It is important to reduce the existence of “haves” and “have-nots.”

School districts will continue to expand the access and availability of technology after school hours for all students, teachers, administrators, and technologists.

- The state and local school districts should collaborate to develop plans, including policies and procedures for after school access to computers and other technologies and resources, especially in areas where technology is not available in homes. Many districts have already developed initiatives to achieve this. Access should be monitored at the state and local levels to ensure ideas are shared and to help reduce the “haves” and “have-nots” scenarios.
- Teams can seek funding opportunities or creative strategies to provide incentives that encourage after-school access to technology and resources, especially in areas where technology is not available in homes.
- Expand collaboration with public libraries, community centers and institutions of higher education to provide anytime, anywhere access to technologies and digital content.

Local School districts should strive to provide:

- **A working group to identify viable metrics that quantify how many resources per technical area are necessary to adequately support a modern educational technology environment (desktop, network, security, websites, classroom technology).**
- **Technical support using a locally established multi-tiered help desk.**
- **At least one full-time technical support person for every 150 to 300 computers or classroom computing devices. This ratio is a generic model which needs to be evaluated on a district by district basis based on their needs and their capabilities.**
- **At least one full time network administrator per 40 servers and/or 5 locations.**
 - Create a working group of district technologies and jointly publish “effective practices” for implementing efficient and effective technical support in local school districts, including programs for students to support technology in schools. This should include roles and responsibilities of personnel along with state level resources and any local vendors that might be involved.
 - Establish a differentiated response system for service requests that is based on the level of impact on the end users of the malfunctioning technology. Identify innovative strategies to better support technology. For instance: use students as the first tier of help desk services to troubleshoot basic issues, then engage the full time technical staff.
 - Develop standards for the knowledge and skills needed by technical support staff.

- Provide ongoing training at the regional and local levels.
- Explore funding strategies to move toward meeting models for technical support and network administration.
- Consider providing incentives to encourage technical support staff to remain in schools and school systems rather than seek opportunities in the private sector.
- Explore collaboration opportunities where schools and districts (and potentially local businesses or colleges) work together to provide technical support. This model works in other states and it allows entities to share fixed costs.

Summary of Findings

- The requirements-gathering activities related to this section focused primarily on the following areas
 - Network access and density
 - Desktop support and refresh strategies
 - Email systems
 - Printers/Faxes/Copiers and how they are procured and maintained
 - Website support
 - Server and database environments and support
 - Security (all levels)
 - Disaster recovery strategies
 - Help desk strategies
 - Tools and techniques
 - Issues and concerns
 - Technical support model and staffing levels
 - Recommendations/wish lists from districts and support personnel
 - Suggestions on where centralization and/or collaboration could make sense
 - Suggestions on where the state could add targeted assistance
- The vast majority of district information technology staff and technology support staff often work in a reactionary mode on a day-to-day basis and consistently feel overwhelmed.
- There is a general consensus that technology staff are perceived as administrative staff and therefore not critical to the mission of an education facility. The reality is their jobs are quite possibly some of the most important functions next to the teachers. Technology staff are concerned that administration doesn't understand the vital role technology support staff play in the proper functioning of a modern school.
- Different school districts have different degrees of broadband access. It is not fully standardized across all schools and districts at this time.
- There is clear evidence that certain districts and schools have notably less broadband network access than others.
- Significant progress has been made to expand the infrastructure capabilities across the state of South Carolina.
- The state has done a good job signing up the nation's most reputable infrastructure technology firms to state contract vehicles. Many school districts successfully leverage the state contract and many of the best of breed technologies are currently in use across the state.
- Wireless access is one of the most important issues facing all districts and schools. Reliance on wireless is critical and expansion of wireless networks is a top priority.
- Email systems are not standardized statewide and for many districts require significant focus from the already overextended technology support staff. Diverse email platforms make it challenging for

districts and state agencies to create shared support strategies. Additionally, inter-district email communications are often not received due to incompatibility issues.

- Database support and server support staff often must manage multiple platforms and perform multiple roles just to keep the lights on. There are multiple hardware and software products in use today across districts, and there is a clear desire for better technical support models to assist in the governance of these complex environments.
- Districts rely heavily on the state for website filtering and monitoring. The districts would like to have more visibility into what is taking place and where potential risks may impact them on their side in the near future.
- Security is one of the high priorities for the state. The fear of being hacked and having student or employee data stolen is prevalent. There is a strong desire for the state to provide proactive security audits and targeted assistance to strengthen security measures at the local level.
- The state offers limited support around mobile device management, and in many cases there is a strong desire at the district level for a cohesive mobile device strategy.
- Most districts rely on E-Rate for funding of infrastructure projects. Certain districts have better success managing the E-Rate process than others. With the changes to the E-Rate process, there is a desire for training and/or targeted services to assist with E-Rate counseling and potentially grant writing to help local districts obtain grant dollars for specific technology expenditures.
- There is a direct correlation between a district's school board knowledge and involvement and the funds available for technology. Essentially the school boards who are properly educated on the value of technology and how it provides vital services in the education process, tend to find innovative ways to raise additional funds for technology expenditures. Where school boards are not as active, there is less money generally available to spend on technology initiatives and products.
- Many districts conveyed their frustration with the methods in which printers, copiers, and scanners were procured and utilized at the individual school level. Random purchases are routinely made and the limited technology staff are required to determine how to support new and diverse products. There is a strong desire at the district level to begin moving in the following direction:
 - Centralized network printing from the classroom to a specific machine
 - Eliminating or minimizing in-class printers/copiers/scanners
 - Outsourcing printing/copier/scanning support services to local vendors
- The districts that have already outsourced the above services are finding their technology staff have more time available to work on more strategic activities.
- There is a strong desire at the district level for robust collaboration in the following areas:
 - State master contracts and better use of purchasing consortiums
 - Sharing of experiences with different technologies and how to best support them
 - Creating regional support models that could help schools leverage each other's technical teams to support each other's systems
 - Creating regional technical training classes

- Most of the districts have ill-defined disaster recovery strategies and clearly recognize this is a risk. There is a strong desire for state assistance in this area or at the very least, assistance facilitating regional examination into how disaster recovery could be done in a cost effective manner.
- Computer support is a major challenge for most school districts. There is no common strategy for technology refreshes. There is a direct correlation between the ability to maximize the value of classroom technology and the version of operating system the computing devices are currently operating. The newer the operating system, the greater return on investment in classroom technology.
- As of early 2014, Windows XP is still widely used across the many school districts. This is a critical risk. There are security risks with this version of the operating system, and after April of 2014 Microsoft will no longer provide patches to this software, making it extremely vulnerable to malicious hacking. Most districts are aggressively moving away from Windows XP, but attention needs to be focused on the timeliness of migration, what version they are migrating to, and the underlying technology's "minimum operating requirements" versus "recommended operating requirements."
 - There is a concern that when Windows XP is upgraded on older technology it will inevitably degrade the system's performance. If proper attention is not given to the hardware and how it will be able to interact with classroom technology, it is possible that slow performance will become an issue or certain applications may not work if the proper requirements are not in place.
 - Following the recommended requirements is clearly more expensive but is a highly recommended industry practice that will help the classroom technology operate as it was intended.
- Many of the districts expressed frustration with how their local websites have to be maintained. There is little to no standardization and many districts rely on teachers and administrators to assist with the website maintenance. There is also some frustration at the family level when it comes to the overall website strategy within the education system in South Carolina. The state's website and Department of Education websites do not tie directly into the districts' and specific schools' sites. A great deal of navigation is required and the lack of standardization poses additional challenges. A centralized or regionalized web services contract to help the districts and/or schools better manage websites might be worth exploring.
- The final observation is one of the most important. There is clear evidence that technical skill sets are not equitable across the state's school districts. In many cases there are significant deficiencies in technical skill sets often times due to budget constraints. This directly affects the schools, the teachers, and ultimately the students who rely on technology. A focused attempt to expand technical training and technical support services is badly needed to help level the playing field and reduce the great frustration that exists across many of the school districts. With the ever-increasing reliance on technology in today's modern schools, it is imperative that the schools have adequate technical support staff to manage the diverse technical products and services being

acquired and implemented on a regular basis.

- One limitation in many schools is the availability of reliable technical statistics related to all of the state's school districts. Many districts have been hesitant to share much of this data for political reasons, making it challenging to clearly identify existing pain points and potential solutions.

Recent Progress

Since the 2009 Educational Technology Plan was released, school districts and state agencies have made demonstrable progress expanding South Carolina’s overall technical infrastructure. This section will highlight examples of the many technologies currently in use across the state and areas where demonstrable progress has been made. The intent of this section is to provide the reader with a summary of the different categories of technology that exist and the products/services that the state is currently utilizing. This is not an exhaustive list but it is based on the statistics already gathered and dozens of conversations with districts and support staff within the schools.

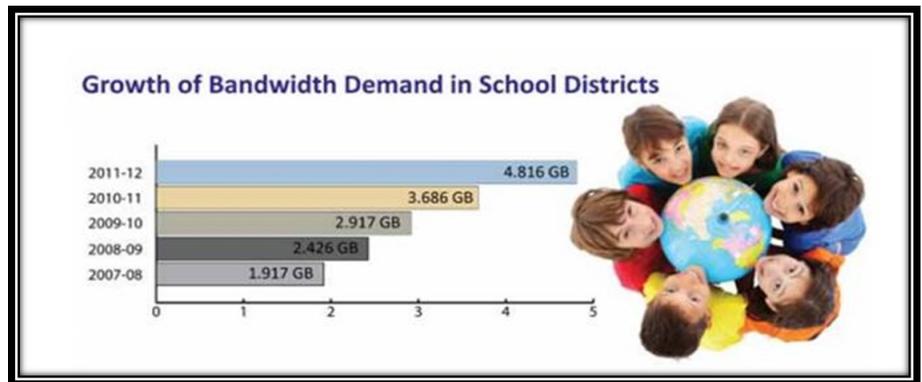
Category	General Comments
Network Bandwidth	<p>The state currently offers a baseline of 100 MB of bandwidth to districts. The districts can purchase additional bandwidth at low rates and many districts have taken advantage of this to significantly increase the bandwidth coming to their districts.</p> <p>The district is ultimately responsible for the bandwidth within its buildings where majority of challenges are occurring at the local level.</p>
Email Systems	<p>District email systems are not standardized. The majority of districts use Microsoft Outlook. The second most popular email system is Google Mail. Other systems being utilized include GroupWise and Office 365.</p> <p>Progress is being made to move to hosted email systems in efforts to reduce costs, improve service, and free up technical staff to work on more value added services. This trend is expected to continue in the coming years.</p>

Category	General Comments
<p>Printing/Copiers/Scanners</p>	<p>Many document management products' brands are being used by schools:</p> <ul style="list-style-type: none"> • Ricoh • Sharp • Cannon • HP • Epson • Brother • Xerox • Fujitsu <p>Multiple districts are outsourcing and actively collaborating to get better purchasing power from vendors.</p>
<p>Desktops/Laptops/Tablets/Mobile</p>	<p>Most of the major computing device products are currently being used:</p> <ul style="list-style-type: none"> • Apple (iPad, MAC, I-Phone) • Android (phones and tablets) • Windows (computers, phones, tablets) • Lenovo/IBM • Dell • Compaq • Acer • Asus • Sony • Gateway • Multiple versions of Chromebooks • Multiple models of tablets
<p>Windows Operating System</p>	<ul style="list-style-type: none"> • Windows XP • Windows 7 • Windows 8 <p>The majority of districts are migrating to version 7 for stability reasons.</p>

Category	Products Currently in Use
Servers	<ul style="list-style-type: none"> • HP • IBM • Dell • SUN • ETV Streaming Servers <p>Many districts have multiple platforms, which complicates support. There are instances where districts are attempting to standardize wherever possible.</p>
Databases	<ul style="list-style-type: none"> • Oracle • SQL Server <p>The majority of districts appear to have Microsoft SQL Server ,but many districts utilize multiple database platforms, which significantly complicates support requirements. Associated skill sets are not directly transferrable.</p>
Network Devices and Services	<ul style="list-style-type: none"> • Cisco • Netgear Brocade • VOiP • VMWare virtualization tools
Security Tools and Services	<ul style="list-style-type: none"> • D.S.I.T. state provided security monitoring • Barracuda Devices • Lightspeed • Fortinet • Meraki MDM

Online Security and E-Rate Requirements

The majority of the school districts in South Carolina receive federal funds through the E-Rate program. One of the compliance requirements of this program is related to the Children's Internet Protect Act (CIPA). CIPA requires a dedicated focus at the state, district and individual school level to provide targeted training.



Specific requirements have been established which require schools to show evidence that internet safety training is being provided. Documented evidence of this training, including policies, procedures, training materials and a formal audit/compliance monitoring system must be created by each school. South Carolina's local school districts are responsible for managing the fulfillment of these requirements locally and the state has an obligation to ensure the districts are in compliance with federal regulations.

Spotlight on Success

Spotlight on Success - SLICE

One of SCDE'S most exciting, ambitious, and significant initiatives of the past two years is the Statewide Longitudinal Center for Education (SLICE). This project was initially incepted and funded by a federal ARRA grant in 2009 and was intended to create a statewide longitudinal data system. One of the grant's objectives was to create a longitudinal mapping of student data through unique identifiers (their PowerSchool IDs) in an effort to better understand teacher quality and practices for improving student outcomes.

Pre-K data, K-12 student academic data, and even higher education data showing how the state's high school graduates perform as freshmen are available on data dashboards in the SLICE system. This system is available for use by district data leaders and will be made available to the general public in early 2014. Hands-on training will be provided to help educators use the data in the SLICE system to make informed decisions about what steps they can take in their classrooms to improve students' performance.

The SLICE project has been a success, when reviewed using the standard criteria that are applied to assess SLDS grant projects. More importantly, however, are the ways that the SLICE program has succeeded relative to the three criteria listed below.

Collaboration – The SLICE system was developed through the diligent and persistent efforts of SCDE and its partners. These partners include the Commission on Higher Education (CHE), the Department of Employment and Workforce (DEW), the Office of Research and Statistics (ORS), BabyNet, First Steps, the Department of

Social Services (DSS) and many of the state's school districts. In 2014, SCDE will continue to work with each of these partners, but primarily the school districts, to collaboratively determine what additional enhancements can be made to the SLICE system that will serve the districts' needs.

Professional Development – One of the SLICE system's capabilities is a series of curriculum management dashboards. These dashboards show which curricular assets are being used in each grade and subject and display how students are progressing through that curricular path. The vision for these dashboard tools is to allow them to be linked to Professional Development materials, allowing educators to easily see and learn how other teachers in South Carolina are effectively using these materials in their classrooms. If used in this capacity, the SLICE system could become an additional way for educators in South Carolina to share proven practices about teaching and learning in schools.

Infrastructure – The SLICE program is an example of an enterprise application that has been effectively implemented to solve a statewide need for district and school level data reporting and analysis tools. It is the intent to expand this system over time so that it will meet even more of the needs that educators and administrators have to easily and effectively access accurate, actionable data.

Challenges and Improvement Opportunities

This section is focused on technology infrastructure and information security, but many sub-topics emerged during research. The list of topics below is not exhaustive and will likely be expanded upon as plan efforts continue.

Challenges and Possible Solutions

There is a great deal of uncertainty surrounding the necessary amount of bandwidth needed to allow each student to successfully utilize today’s classroom technologies. If bandwidth is insufficient or the wireless system is not robust enough to allow students and teachers to successfully leverage the desired technology, at a certain point, the learning process will be directly impacted.

- Collaborative study must continue in order to identify and agree upon standards surrounding the necessary average bandwidth per student. Exploration should consider mobile devices, streaming video and other online content that is accessed on a continuous basis. The state has already compiled a great deal of information in this area and will provide what has been compiled in the appendix.
- It is worth mentioning that this information can be extremely useful when it comes to justifying additional funding requests.

Desktops and all devices still running the Windows XP operating system must be upgraded as quickly as possible. After April 8, 2014, Microsoft discontinues support of XP and no further security updates are provided. There are many risks in this area, including severe security control degradation, limited integration with modern classroom technologies, and challenges resolving technical issues due to limited to no Microsoft support.

- Concentrated efforts at the district level must continue and accelerate efforts to migrate from Windows XP to a newer supported operating system. A great deal of testing may need to take place once these systems are upgraded.
- Examining outsourcing of the upgrade process may be an option to help ensure these activities are done in a timely manner and the systems are properly tested.
- A proactive assessment of all hardware and its “minimum requirements” versus “recommended requirements” is warranted. It may be discovered that many of the new technologies coming out today will claim to run on “minimum requirements” but the reality is they may not perform as desired. Education technology professionals should strive to move technology platforms to the “recommended requirements.”

The staffing ratio of technology support personnel per student needs to be analyzed to determine proper level of technical staffing and training for South Carolina schools. Many of the districts clearly do not have enough technical support staff or training to fully meet the

needs of their educational and administrative programs. They are working under extraordinarily tight timelines and they are forced to juggle many tasks on a daily basis.

The risks multiply when factoring in how rapidly technology is changing and how quickly products that are seen as cutting edge today become obsolete tomorrow. It is imperative that the technical support staff also be involved in new technology assessments.

School districts must address the pressing need for Disaster Recovery Solutions. In some cases there is no consistent approach to disaster recovery, putting those districts and schools at great risk.

- Disaster Recovery potentially impacts both state systems and local school district platforms. It is imperative that all parties work together to identify areas where collaboration makes sense.
- Dozens of vendors offer cost-effective Disaster Recovery solutions. This should be one of the first areas the state and districts focus on in 2014. The agreed-upon service providers should be put on the state contract for districts to leverage if they so choose.

Security concerns are one of the most commonly mentioned issues across the school districts' leaders. Security is a broad topic and potentially impacts many areas including:

- Student Data-PowerSchool, Websites, Teaching Portals
- Employee Data-HR/Payroll Systems
- Financial Data-Accounting & Finance Systems.

There is a strong need for a comprehensive security approach to protecting institutional and personal data. The federal and state government both have stringent guidelines for data security. South Carolina had a 2012 state-level security breach that ultimately cost tax payers tens of millions of dollars in recovery and protection efforts - a compelling demonstration of the need for enhanced infrastructure and additional security measures.

- It is important that the state and K-12 educational institutions collaborate to identify ways to proactively audit security risks and implement targeted solutions to address the specific needs at the school district level.
- Formal Information security (InfoSec) protocols should be required at the school district level and assistance made available by the state in InfoSec auditing and resolution.
- Additional training around information security already is required at the state and local level.
- District Information Security staff should work collaboratively together in addressing these areas of InfoSec.

The staffing ratio of technology support personnel per student needs to be analyzed to determine proper level of technical staffing and training for schools. Many of the districts clearly do not have enough technical support staff or training to fully meet the technical needs of South Carolina's school districts nor have they expressed a strong interest in standardizing technology platforms across districts. Unfortunately, there is direct evidence

that having several different versions of technology within the district and/or schools leads to decreased support capabilities due to the extreme challenges of requiring limited technology staff to learn the intricacies of several different hardware and/or software platforms.

- A more standardized technology purchasing strategy should be examined at all institutional levels. This would allow the state and districts to better train staff on how to analyze and fix hardware and software solutions. This type of purchasing strategy is an accepted industry approach and would also greatly simplify management of the technology refresh process.
- It is important for districts to embrace their commonalities and support collaboration opportunities for purchasing, technology support and training across those districts that utilize similar technologies.

Professional Development

Goals and Objectives

Improve teacher and administrator integration technology in the classroom, administration, and overall learning process.

The Importance of Professional Development

Professional development opportunities can ensure that educators have the skills to support lesson planning, classroom management, and administrative tasks required to provide a high quality 21st century education to students. Professional development opportunities for educators must be available 24/7 to all educators through a variety of delivery methods, including online and other on-demand learning technologies.

It is important to remember that educational software, like textbooks, is only one tool in the learning process. Neither can be a substitute for well-trained teachers, leadership, and parental involvement.

Keith Krueger

(Kruger, 2007)

Many South Carolina educators are very comfortable with technology and use it regularly in their classrooms. Many others are willing to learn but have had limited access to appropriate technology and time for professional development to enhance their skills with sufficient exposure to the effective use of technology. To meet the needs of South Carolina's students and prepare them for success in the 21st century, institutions must devote significant time and resources to adequate and ongoing professional development for all teachers. A comprehensive professional development initiative is imperative. With sustained leadership and support, this initiative can help educators integrate the latest technologies into the day-to-day education process. Such an initiative should be responsive to the needs of educators by providing content-focused strategies and technology tools appropriate for each subject area and grade level.

Objectives for 2016 and Recommendations

Design and implement technology standards that are relevant and mutually agreed upon by educators and administrators.

- Identify technology standards and implement measures to monitor progress towards meeting these standards. Tie specific training activities to standards to ensure teachers have adequate opportunities to learn new technologies.

Teachers and library media specialists will meet established education technology standards.

- Incorporate technology requirements into local professional development plans.
- Encourage local school districts to utilize online assessment tools to measure teacher technology literacy; assist staff in structuring their individual professional development plans for meeting agreed upon standards.
- Collaborate between school districts to share models of successful professional development.
- State and local institutions could jointly seek strategic partnerships to provide opportunities for state and local professional development programs that include targeted training in

relevant technology applications.

- Develop high-quality professional development hybrid, online courses, and e-communities to provide anytime, anywhere course opportunities and support for technology infusion.
- Consider ways to reward teachers that have achieved proficiency on meeting the standards. Funding considerations must be considered as part of this strategy.
- Provide incentives to encourage technologically literate educators to teach or continue to teach in low-performing schools as well as rural and urban areas.
- Continue to build internal capacity in schools to support technology-related professional development using state, district and school administrators, county or school-based technology specialists, school library media specialists, teachers, private sector resources, and other knowledgeable partners.
- Develop evaluation criteria and standards-based tools that can be used in observations to evaluate instructional staff competency related to the adopted standards.

Administrators at the school and district levels will meet established education technology standards.

- Develop evaluation criteria and standards-based tools that can be used by staff to evaluate competency related to the adopted standards.
- Develop high-quality professional development to provide anytime, anywhere learning opportunities for staff and/or administrators.
- Use online tools to assess the knowledge and skills of administrators and teachers and assist them in creating professional development plans for meeting the adopted standards.

Management should review staffing levels to determine the optimal ratio of technology support personnel per staff member. This would include distinguishing between technical training staff, technical support and specific technology-related roles and responsibilities.

- The salary grades will need to be examined to ensure the technologists roles and responsibilities properly map to the state's salary bands.

Teachers will have access to classroom and online training for classroom technology.

School districts will provide on-going professional development opportunities that support effective technology integration, implementation and enhance student academic achievement.

- Districts should provide ongoing professional development opportunities to ensure teacher technology literacy.
- Districts should provide ongoing professional development opportunities to ensure effective, responsible, and safe use of technologies (i.e. Digital Citizenship, Internet Safety, Information Security).

- Districts should provide ongoing professional development opportunities in effective practices to ensure effective technology integration in the classroom.
- Districts should provide ongoing professional development in the use of data, data-informed decision-making and data-driven instructions.

Educational institutions will provide resources, support and information regarding highly effective practices in classroom technology implementation and integration.

- A review of existing tools and resources is recommended to ensure the districts can measure the effectiveness of technology and how it's being utilized within the classroom.
- Identify new ways to collaborate to support and promote the use of leading practices at all levels.

Summary of Findings

- South Carolina has a robust professional development plan in place that is monitored on a routine basis.
- Scholarships and grants are available for teachers and administrators to utilize for training classes.
- Professional Development Training and Teacher Recertification: Trainers evaluate processes and local facilities, identify needs, consult, recommend and create solutions. They communicate current education outreach, new technologies, education services and applications, teaching methodology, and implement when applicable. SCDE, SCETV, State Library, and other state entities offer a variety of teacher professional development activities and resources.
- There is a large supply of classes that are available via classroom and online formats. The greater challenges are finding the time to attend these classes and informing the masses what courses are available.
- There is a strong desire for more regionalized training opportunities and for more online-based training opportunities.
- Teachers can learn a lot from the online classes but they prefer the classroom setting so they can network with their peers and share ideas and practical experiences.
- There is a strong demand for focused technical training classes. Teachers routinely find themselves overwhelmed that the technology is changing so rapidly and they feel as though it is impossible to keep up with everything new.
- There is a need for focused technology assessments for teachers, administrators and support staff to gauge skill levels and ultimately map any deficiencies to the necessary training courses.

Recent Progress

Over the last few years the professional development staff across the state has made great progress refining the types of training staff required in order to adequately perform their jobs. During the 2013-2014 school year, professional development staff from the SCDE Office of Instructional Practices and Evaluations designed and implemented a series of training sessions focused on educating teachers and administrative staff on the value and usage of multiple technologies prevalent across the state.

Literacy specialists and technology coaches were identified and trained to help the state's districts and schools expand their understanding of technology and help the teachers more effectively integrate technology into lesson plans.

Of note, six technology coaches have been funded through the K-5 Lottery Grant in the following districts: Bamberg 1, Colleton, Dillon 3, Dillon 4, Hampton 1, and Marion. The goal of these coaches has been to integrate technology in the K-5 setting to increase student achievement. These coaches are responsible for overseeing professional development throughout their schools. Technology coaches hold professional development sessions during teachers' planning periods, after school during planned professional development sessions, and during district in-service days. The coaches also model lessons and co-teach with teachers within their buildings. Coaches conducted needs assessments at the beginning of the school year to determine teachers' needs. The following topics were the most commonly requested professional development sessions by schools and teachers:

- Microsoft's Publisher software and producing various products
- Research skills
- My Big Campus (online classroom management system)
- Quick Responsive (QR) codes
- Basic computer skills needed by each grade level
- Interactive whiteboards
- Online resources for content areas to include reading, writing, math, science, social studies, and various enrichment classes
- Smart Notebook
- Document cameras
- Tablets
- Edmodo (student-like "Facebook" application)
- Online encyclopedias
- South Carolina Internet Safety standards

Spotlight on Success

The Richland School District Two technology integration team ensures that professional learning is customized to meet the needs of all teachers. As 1TWO1 computing is implemented in the district, a collaborative team across departments has developed a scope and sequence for technology professional learning. They seek quality in providing service and proven practices in the delivery of their product. The National Educational Technology Standards (NETS) from the International Society for Technology in Education (ISTE) were used in developing a scope and sequence. NETS are the standards for learning, teaching, and leading in the digital age and are widely recognized and adopted worldwide. NETS are available for students, teachers, administrators, technology coaches, and computer science teachers.

School TLC:

Each school has a full time Technology and Learning Coach (TLC) who is available to collaborate with teachers on the integration of technology into the design of student work. The school TLC also provides regularly scheduled and customized professional learning sessions for classroom teachers based on the individual needs of teachers. The school TLC also provides sessions and support for administrators and classified staff.

Train-the-Trainer Model:

Using a train-the-trainer approach, the district technology integration team provides professional learning for the school-based TLC at bi-monthly training sessions. Elementary TLCs meet once a month as a group and once a month in peer coaching teams, as do the middle and high school TLCs. In these training sessions, TLCs develop training materials, develop presentation skills, and have hands-on experience with technology tools. School TLCs also communicate electronically through groups and collaborate online to create professional learning resources.

Customized Professional Development at Each School:

Each school TLC administered a survey to their faculty at the beginning of the school year to assess professional learning needs. Each school is also encouraged to have a technology design team to ensure that technology professional learning is delivered to meet the needs of faculty and staff. The school TLCs and technology design team work closely with the school-based Professional Learning Leader (PLL). The PLL serves as a liaison between teachers, the school, and the district. Their feedback led to customized professional learning plans developed by each TLC with the assistance of the school technology design team.

Other initiatives such as face-to-face monthly training, digital starter kits, teacher integration tools, and training increase productivity. The district technology integration team reviews all plans and provides feedback to the TLCs. Technology professional development at each school also includes sessions for teachers and administrators on the Technological Pedagogical Content Knowledge (TPACK) framework and the Substitution, Augmentation Modification, Redefinition (SAMR) model. The TPACK framework guides teachers in designing student work that is the right fit of technology tools, content knowledge and instructional strategies within the context of the Richland Two framework. The SAMR model defines how teachers can progress from using technology as an enhancement to using technology in transformative ways.

Unique Challenges Within Professional Development

Professional development is unique across school districts and within particular school districts. The challenges that exist are often tied directly to an individual but there are several common challenges that arose during the interview process:

- Teachers require additional online professional development options.
- Districts, schools, and educators require training that is tied to specific technological devices.
- Educators require assistance identifying innovative methods for differentiating instruction to meet the needs of different students.
- It is challenging for educators to keep up with the 21st century ISTE standards for students.
- The number of new technologies available to educators increases yearly and it is challenging for teachers and technical support staff to stay current on new products and versions of products available in the marketplace. It is also difficult to stay current with the latest security patches and upgrades associated with specific technologies.
- There is a rapidly growing dependence on videos and streaming video/audio within the classroom. These are often times large files that require heavy bandwidth to utilize. The availability and scale of the network directly affects educators and students on a daily basis. Many schools are concerned there won't be enough bandwidth to adequately support students' technology needs.
- Educators are interested in attending more focused technology professional development conferences. There is a desire to attend online conferences and webinars but it is often challenging for teachers and technologists to stay current on the availability of different classes.

Challenges and Possible Solutions

Limited available free time to take classes.

- Additional online, regional and classroom courses.
- Expanded regional classes to make it easier to attend training sessions.
- Dedicated timeframes for training within a calendar year.
- Backfill processes to help staff find time to take classes and minimize the impact on the organization while they are gone.

Lack of awareness of free educational opportunities related to technology.

- Better identification of training opportunities, potentially a centralized training website. Currently there are multiple sites for people to explore which makes it challenging to identify what is available.

Limited budget for retention of professional certifications Occupational Therapy (OT), Physical Therapy (PT), Speech Language Pathology (SLP) and Assistive Technology Practitioner (ATP).

- Additional dollars to support the certification process.

Collaboration Opportunities

Goals and Objectives

Identify innovative ways for state agencies, local school districts, schools, families, and local businesses to collaborate to enhance the learning experiences for the students of South Carolina.

Objectives and Recommendations for 2016

Identify several innovative ways for the state agencies, schools, families, and local businesses to collaborate to share information.

Expand collaboration opportunities using technology tools to develop all manner of partnerships within the local, regional, state, and global communities. These partnerships should provide a rich resource to students, building opportunities for learning, and helping foster overall community growth. Partnerships should assist learners in sharing relevant information with parents, community members, school partners, and other school sites.

It is not about the technology; it's about sharing knowledge and information, communicating efficiently, building learning communities, and creating a culture of professionalism in schools. These are the key responsibilities of all educational leaders.

Marion Ginopolis

(McLeod, 2006)

- Expand PreK-12 and higher education collaboration so as to strengthen the instructional technology components of the teacher preparation programs (i.e., use of appropriate terminology, training in technology decision-making, data-driven decision-making and organizational change).
- Help teachers build personal collaboration networks that might include social media tools and relationships that stretch beyond the classroom walls.
- Provide education opportunities and relevant grant resources to build community partnerships with state, national, and global entities.
- Foster and support communication between school communities in a variety of ways.
- Continue to foster connections to other school districts, regions, state agencies and local businesses.
- Continue to provide and support initiatives that draw on local and regional resources through the use of electronic means.
- Showcase examples, when possible, that exemplify effective practices in the engagement of community partners.
- Connect schools with regional and national organizations that assist with providing access to students with disabilities.
- Provide online resources for fostering parent involvement in school communities. Resources may involve day-to-day communication with parents via email, social networking sites, and

new modes of electronic communication providing access to student files and individual learning plans and examples of work, and providing regular access to student information system data on their child's progress.

- Provide educational opportunities and relevant grant resources to build community partnerships with state, national, and global entities.
- Foster and support communication between school communities in a variety of ways.
- Continue to provide and support initiatives that draw on local and regional resources through the use of electronic means.
- Provide and showcase examples, when possible, that exemplify leading practices in the engagement of community partners.
- Continue to support efforts surrounding South Carolina's Virtual Learning programs to expand offerings both within and out of state so that learners may take advantage of a diverse variety of courses and offerings.
- Connect schools with regional and national organizations that assist with providing access to students with disabilities.
- Become a model of collaborative communication for local communities, with students involved in the creation, development, and maintenance of websites, blogs, apps, and other collaborative tools for local projects and entities.

Summary of Findings

- There is a strong desire across all districts to identify new ways to collaborate.
- There is compelling evidence that districts (and schools within districts) that collaborate tend to have better success acquiring, implementing and supporting technology. They are able to share lessons learned and proven practices and incorporate these findings into their strategic plans.
- Many districts and schools within districts tend to network with their “neighbors” but seldom connect to peers outside of their region.
- Districts are interested in better collaboration with state agencies. (i.e. SCETV, State Libraries, Department of Education).
- Community colleges and state colleges are actively involved in collaboration with school districts and local schools. There is a strong desire to expand this collaboration.
- There is a growing trend for school districts to collaborate with their neighbors to pool resources together and enter into contractual relationships with local businesses to provide goods and services. These purchasing collaborations save money and allow districts to do more with less.
- Parents have expressed a strong desire to be more engaged with their children’s education. South Carolina schools currently have a large footprint of interactive portals that help bridge the gap between schools and home. There are plans in place to expand the use of portal technology.
- There is a need for a mechanism to foster communication and collaboration between different entities across South Carolina’s education network:
 - Districts
 - Schools
 - Families
 - Community colleges
 - State colleges
 - Local and state libraries
 - State agencies
 - Local businesses
- During the information gathering process there was a strong desire to leverage a portal-like system that would allow participants to network with each other within “communities” that can be created and managed in a simple and cost effective manner.
- There is a strong desire within all levels of South Carolina’s education system to identify new ways for educators, administrators, and families to collaborate to share information related to children in South Carolina.
- South Carolina’s school districts would like to establish new communication forums such as interactive portals to share ideas, lessons learned, and effective practices.
- South Carolina’s state colleges and community colleges have offered to expand their collaboration with the K-12 community.

- Many of the state's school districts are currently collaborating with local businesses to provide targeted technical and training assistance.
- There is little awareness of agencies that can provide teachers and/or districts with resources. Expanded insight into free and low-cost technology solutions, collaboration opportunities and the functions and capabilities of state agencies would be appreciated.
- The feedback on conferences such as SC Assistive Technology Expo and Family Connection was very positive. More 1-day seminars and conferences in a regional model would be well-received.

Recent Progress

- ListServes have been used to share ideas and collaborate. These tools are useful but not as value-added as an interactive platform.
- Multiple school districts are currently collaborating with local businesses to provide distinct services such as:
 - Printing, copying and scanning capabilities
 - Desktop support
 - Network support
 - Email and telephony support
 - Technical training
- Community colleges and state colleges are offering new and relevant training classes to teachers, administrators and students.
- Local and state public libraries are collaborating closely with the local schools to ensure students have access to technology before, during and after school hours.
- Local schools are collaborating with the families of their students to identify gaps in a child's technology skills and they are working together to bridge these gaps, using after school programs, take technology home programs, and customized education programs.

Spotlight on Success

The Pee Dee Education Center is a consortium of sixteen school districts, Coker College, and Francis Marion University. The consortium was established in 1967 to provide support for the school districts in the region. In 2000, the consortium built the building in which it currently resides on 7 acres of land and owned it outright until July 2005, when it was deeded over to Francis Marion University because of a high tax burden. Francis Marion University now owns the building and land in exchange for the Center getting a 99-year lease (\$1/year). The Center is governed by a Board of Directors composed of superintendents from each member district and representatives from Francis Marion University and Coker College. Each of the 16 member districts contribute to all of the expenses of the consortium by a formula determined several years ago. Larger school districts pay more than the smaller districts based on student enrollments. The Center is also respected as an authoritative communications link with political and educational entities throughout South Carolina.

The Pee Dee Education Center provides such programs as Project SHARE which serves low incidence (visually, orthopedically, or hearing impaired) disabled students in the host sites of Darlington County Schools and Florence School District One. Specially trained teachers, assistants, and related services personnel, such as

occupational therapists, physical therapists, speech therapists, and orientation and mobility specialists, work with students needing these services. Students qualifying for these services are transported into the host districts by the students' home school districts.

The Center promotes hiring of minority teacher candidates by sponsoring several loans each year to worthy minority students who attend college and major in education. These students can receive \$1,000 per year for a maximum of \$4,000 to become certified teachers. If the student works in a member school district, the district repays the loan (\$1,000 per year). If the student does not work in a member district, he or she must repay the loan plus interest. Upon graduation, if the student returns to the Pee Dee region to teach, the loan is paid by the school district.

The Pee Dee Education Center sponsors the following academic programs during the school year. Most are held at Francis Marion University and other agencies assist with the activities. Academic Challenge for middle and high schools Junior Scholars Program, Regional Spelling Bee, and Math Tournament are examples.

The Pee Dee Education Center provides PowerSchool workshops and technical support for member districts at the Pee Dee Education Center or at district locations by a highly qualified professional trainer. This component is funded differently in that all members pay equally for program expenses. The superintendents think so highly of this program, that they voted to purchase new computer equipment for the program. An unbudgeted server was also built from reserve funds.

The Center also had to buy a new server which was unbudgeted. The server was needed to keep the lab up to date.

Local Business Collaboration Spotlight

In response to an RFP from Richland School District 2, VC3, a Columbia-based Information Technology (IT) services company, built the TestView program (now called Enrich Assess) in 2000. After other districts saw TestView and requested similar assessment capabilities, the vendor began licensing it to districts across South Carolina starting in 2003.

The system gave districts the ability to import their various standardized test scores and integrate them with data from their Student Information Systems (SIS) so that teachers, guidance counselors, school administrators and district administrators could more easily analyze their students' performance. The system also assisted with the generation and management of academic plans for students as required by state law. Additional applications for managing Response to Intervention (RtI) and Individual Education Plans (IEPs) for special education were added. This complete suite was rebranded as Enrich.

When asking for district input regarding user interface and functionality for the state's longitudinal data system, some districts suggested it should "work like TestView." That resulted in the SCDE licensing the system for all SC districts, with an instance at the state level that could collect district data in a scheduled, automated upload process. The goal was to replace manual and labor-intensive quarterly data extracts with a more frequent and ongoing process. In addition to Enrich Assess, the state has licensed the Enrich IEP module for all districts.

Business and Technology Collaboration

The following paragraphs provide an illustration of the creative ways that education technology can be applied to address the challenges that educators face in successfully integrating education technology in their classrooms. This spotlight is neither an endorsement nor a recommendation of any particular vendor or product. Rather, it is included as an example of how specific common challenges could be addressed in South Carolina's schools through more widespread collaboration.

Berkeley County and Google

Berkeley County School District has been collaborating with Google to identify innovative ways to provide students and teachers with better access to technology. Creation of after school programs and concentrated computer science classes have been focused on several goals:

- Increase student confidence using computers
- Leverage new tools and techniques to research and complete work assignments
- Grow perseverance when tackling difficult problems
- Provide a sense of belonging in technology for underrepresented students
- Examine how computers and technology impact the daily lives of students and families across the state
- Explore job opportunities and career paths that require technology related skills

Google sends one of their information technology specialists to the school to personally teach the day's activities and answer questions related to the subject matter. This gives the students an opportunity to interact with a member of the workforce and to learn the basics of computer coding and support from a professional in the industry. Students are given their own computers to complete the coursework and they are trained in the basics of analysis, coding and even testing activities. The students that attend these classes have commonly stated that they have been inspired to explore future jobs in these areas as a result of the classes that Google has been offering.

This is an amazing partnership and we look forward to getting as many students as possible involved. It has exceeded all expectations and thanks to all involved, especially our students.

Rodney Thompson
BCSD Superintendent

Collaboration with Higher Education Partners

There have been several distinct examples of collaboration between the state's college systems and independent school districts. This example demonstrates the potential power of collaborating during the acquisition process to drive down costs and save taxpayer dollars.

- K-12 and colleges could time their technology refresh cycles to allow for bulk purchasing.

Collaboration Opportunities Collaboration With Higher Education Partners

- Colleges could work with the school districts (teachers, students, parents, and technologists) to educate them on the differences between different products and to lead the acquisition process.
- Colleges could offer their data center operations broadband networks to rural and underserved communities.
- Colleges could collaborate with the school districts to work with DSIT to request expanded network bandwidth in key communities. Additionally, the college systems have assisted in the writing of grants over the years including the NTIA-Broadband Opportunity Grant.
- In many communities the technical colleges are seen as public computing centers.
- The technical colleges are bridging the gaps between school districts in many communities by offering access to computers, courseware, teachers and broadband.
- The presidents of the technical colleges work closely with the local school districts to coordinate community outreach opportunities including “Registered Entrepreneurship” – Apprenticeship Carolina – free low cost tax credits are provided to the company that brings students in to learn the trade. Companies such as Google, Amazon, Michelin and many other local businesses actively participate.

Additional Information

Expand Support for Virtual Learning

In recent years there has been significant growth in organized online instruction (e-learning) and “virtual” schools, making it possible for students to receive high quality academic and enrichment courses that meet requirements for high school graduation and entrance for higher education. Traditional schools are turning to these services to expand opportunities and choices for students and professional development for teachers. South Carolina is doing an excellent job in this area and the state has seen significant improvement in the types of classes offered and the number of students participating in online course work.

The South Carolina Virtual School Program (SCVSP) is a free online learning program for students in grades 7-12 who attend a public, private, or home school in South Carolina. There are no limits on the units of credit a student may earn in one year or towards a high school diploma. The SCVSP is a program; **it is not a school**. The SCVSP does not award diplomas. Students that take courses with the SCVSP will earn a diploma from the school where they are enrolled. The SCVSP legislation has recently been amended to lift the credit limitations placed on students. There are no limits on the number of credits that a student may earn toward a high school diploma through the program.

Current Status

- The South Carolina Virtual School Program (SCVSP) provides access to high quality teachers and courses for students and schools across the state.
- South Carolina students can now access at least 72 diverse courses online at various levels including Advanced Placement™, college preparatory, and credit or content recovery. In addition to courses in the core content areas of English, Mathematics, Science, and Social Studies, the SCVSP offers three languages - Spanish, Latin, and Mandarin Chinese - and a variety of electives in such popular career majors as health occupations, family and consumer science, and business education.
- For the academic year 2012-2013, the SCVSP served 16,800 students from 281 schools in 81 public school districts. In addition, students from 16 home school associations, 49 private schools, and 33 adult education centers were served.
- Approximately 93% of SCVSP’s enrollments successfully passed with a grade of 70 or above.
- The passage rate for SCVSP students taking an end of course exam was approximately 70%.
- A survey taken by SCVSP students showed that almost 90% were very satisfied or satisfied with their experience with the SCVSP.
- Algebra 1 and other online courses are available to students in areas of the state experiencing certified teacher deficiencies.
- Online professional development courses are offered through state agencies, schools, and universities.

Goals of the Virtual Learning Office

1. The SCVSP will expand enrollment each year to meet the curriculum needs of South Carolina students.

2. The SCVSP will remain available to schools as an effective channel for equal access to educational programs.
3. The SCVSP will continue to provide for the needs of both students and teachers through an array of curriculum and online staff development programs that support the educational goals of schools and districts.
4. The SCVSP will become an exemplary model for online instruction in the K-12 environment through continued redesign of courses that meet the evolving needs of South Carolina students.
5. The SCVSP, through its online professional development activities, will continue to provide highly qualified instructors to South Carolina students.
6. The SCVSP will continue to expand course offerings based on needs (including advanced placement courses and dual enrollment courses).

Recommended State Strategies

- Provide every 9th through 12th grade student the opportunity to enroll in online courses.
- Disseminate SCVSP information and promote the enrollment of students in the South Carolina Virtual School more vigorously.
- Work with local school districts to identify specific courses that would be value-added and obtain their assistance in creating and delivering these new classes.
- Engage with legislators, local school boards, and other policymakers to identify and secure funds to support virtual learning.
- Expand the availability of online professional development courses that train teachers to design and teach online courses.
- Form collaborative partnerships with parents, community members, business and industry representatives, and others to promote the use of virtual education.
- Offer grant and/or matching funds opportunities that encourage districts to expand e-learning courses and activities for staff and students.
- Continue to expand course offerings by developing new Advanced Placement (AP) courses, honors level courses, and elective courses that support career majors.
- Expand the program into middle school grade levels to include courses for students in grades 6-8.
- Develop positive relationships with schools by providing online course content to schools experiencing staff vacancies or hard to fill positions through the use of the program's blended learning opportunities.
- Develop and promote a franchise model of partnering with schools by offering standards-aligned curriculum to be used on a local level to meet the needs of the district, school, and students.
- Continue to expand the program by adding additional full-time teachers and administrative staff to continue expansion of the virtual program in new areas as a service to school districts statewide.

Recommended District and School Strategies

- Inform district and school administrators, teachers, and students of e-learning opportunities provided for them by the district and state.
- Allocate federal, state, and local funds and resources for virtual learning where allowable.
- Offer students the opportunity to take e-learning courses during the summer school sessions.
- Disseminate information and promote the enrollment of students in the Virtual School.
- Offer low-income students the opportunity to have Advanced Placement (AP) exam fees reimbursed through state and federal reimbursement programs.
- Create virtual learning opportunities that support goals and benchmarks provided by the state, district, and local levels.
- Allocate sufficient funds and resources for professional development and technology support personnel for training personnel in using and creating virtual learning opportunities and resources.
- Encourage teachers and principals to participate in state initiatives that provide virtual learning experiences.
- Provide after-hours access to technology resources.
- Collaborate with district policymakers, legislators, and community members to secure annual funds to support virtual learning.
- Offer incentives to teachers and administrators who complete e-learning professional development classes and/or workshops.

Increased Collaboration Between Virtual School Program and the Palmetto College

In 2012 the University of South Carolina launched their first dedicated online college called Palmetto College. Students are now able to take courses and obtain degrees in several distinct areas including:

- Business Administration
- Criminal Justice
- Elementary Education
- Human Resources
- Liberal Studies
- Organizational Leadership
- RN/Nursing

One of the challenges facing any online university or college program is the identification of students with an aptitude to study in a virtual learning model. The South Carolina Virtual School Program (SCVSP) is currently educating students across the state with ambitious plans to expand the number of classes being offered and the number of students enrolled in the online study program. The guidance counselors across the state's

high schools can collaborate with the Palmetto College and other online college programs across the state to match the online admissions applications to those students with a proven track record attending SCVSP's online classes.

South Carolina Education Television (SCETV)

One of the oldest and most useful partnerships South Carolina school districts have at their disposal is South Carolina Educational Television. South Carolina ETV is the state's public educational broadcasting network with numerous television and radio transmitters, and a multi-media educational system in more than 2,500 schools, colleges, businesses and government agencies. There are several valuable tools that which the schools and teachers rely on to educate students. These include (but are not limited to):

- **Streamline SCETV**, partnering with the SC Department of Education and the K-12 Technology Initiative, created StreamlineSC to improve and manage learning resources in South Carolina schools. The resource is available for free to all South Carolina public, private, and home schools.
 - Community leaders and school officials can track and evaluate StreamlineSC utilization in the classroom;
 - Teachers now have resources that are easy to use and address specific school standards;
 - Students are empowered and engaged through the interactivity of the internet. ETV provides training and will assist with integrating resources into lesson plans.
- **ETV learn online** - SCETV offers online courses through the etvLearn Online course management system powered by Moodle.
- **Professional Development classes** - SCETV provides classroom-based and online classes for educators ranging from preschool to masters level. These classes are all accredited and are available at multiple times throughout the year.
- **Knowitall.org** - Knowitall.org is a collection of fun, interactive websites for K-12 students, teachers and parents. There are hundreds of tools and games for educators, students, and families to utilize on this site.

Local Grant Writing Support

There is a strong desire across the districts and within the individual schools to better understand how to obtain federal and foundation based grant funding. The State Department of Education has a dedicated office focused exclusively on helping the state and individual districts with the grant writing process.

Since the 2009 technology plan, the state has made significant improvements in the area of identifying, applying, and managing federal and foundation based grant money. The Grants Program assists agency personnel and district staff with the following activities:

- Preparing and submitting grant applications
- Providing grant-writing resources, grant announcements, and information on funding agencies
- Assisting with the Request for Proposals for competition formulation
- Assisting the district teachers and administrators across the state with the following steps:
 - Stay informed about grant opportunities
 - Locate useful statistics and research, as needed
 - Review and understand grant guidelines and announcements
 - Establish a work plan and project checklist
 - Polish the proposal narrative (available through e-mail)
 - Review the project budget

The State Department of Education’s Grants Program conducts customized workshops that address proposal writing, post-award procedures, closeout requirements, and monitoring activities. These service offerings are well received and the goal of this department is to expand their capabilities to better support state and district grant writing requirements. Similar services can be provided to individual districts as requested. Each district request for grant assistance will be managed and tracked as an individual project, with a unique set of requirements and goals which will be met to make the project a success.

Additional details pertaining to the grants arena can be found at <http://ed.sc.gov/agency/gc/grants/>.

The State Department of Education also maintains open grant opportunities for which proposals from eligible applicant districts are solicited. These grant opportunities can be found on the agency website at <http://ed.sc.gov/>.

Steps for pursuing grants

Aside from general purpose or operating support grants, most other grants are some form of program or project support. Usually, a project grant is given to support a specific, connected set of activities, with a beginning and an end, explicit objectives, and a predetermined cost. The grant may be project-specific or restricted, and must be used for the directed purpose. In general, project grants are given to support projects related to the mission of the organization receiving the money. There are dozens of project grants.

Here are some of the most common project grants:

Planning Grants

If the organization is planning for a major new program, it may need to spend a good deal of time and money just figuring out how it will look as a finished product. Before even writing a proposal to fund the new effort, research the needs of constituents, consult with experts in the field, or conduct other planning activities. A planning grant supports this kind of initial project development work.

Seed Money or Start-Up Grants

A start-up grant helps a new organization or program in its first few years. The idea is to give the new effort a strong push forward, so it can devote its energy right away to setting up programs without worrying about raising money. Such grants are often for more than one year, and frequently will decrease in amount each year. For instance, a grant might be \$25,000 the first year, \$15,000 the second year, and \$7,000 the last year. The funder assumes the new organization will begin to raise other funds to replace the decreasing start-up grant.

Management or Technical Assistance Grants

Unlike most project grants, a technical assistance grant does not directly support the mission-related activities of the organization. Instead, it supports the organization's management or administration – its fundraising, marketing, financial management, and so on. This type of grant might help hire a marketing consultant, or pay the salary for a new fundraiser position.

Facilities and Equipment Grants

Sometimes called "bricks-and-mortar" or capital grants, these grants help an organization buy or restore a long-lasting physical asset – a building, computer, or van, for instance. The applicant organization must make the case that the new acquisition will help serve its clients better. Funders considering this type of request will not only be interested in the applicant's current activities and financial health, but will also ask about financial and program plans for the next several years. They want to be sure that if they help an organization move into a permanent space, for example, the organization will have the resources to manage and maintain it. No funder wants to help pay for a new building, only to have it close in four years because it is too expensive for the organization to maintain.

Highly Effective Practices for Grants

- Know exactly what equipment is needed and how it will be integrated into the organization. Federal money and foundations only give money for equipment to educational organizations that have provided details on what is needed and how it will improve students' lives. It is important to provide specific information, such as what it needs to be able to do and how much it will cost to buy and maintain. Detail how it will help students, such as improving math scores or reading comprehension. The more details the reviewer of the grant request has to evaluate the better the odds are that the grant will be approved.

- Find grant sources that fit a specific grant request. Federal agencies and foundations often post their guidelines concerning how the funding will be approved and the equipment that will be supplied. There are dozens of resources available to search for grants. The state currently uses several sources including the Foundation Center (<http://www.foundationcenter.org/>) to locate sources that fund educational organizations, technology purchases, and programs related to the mission, such as reading or mathematics. Another resource is the local library, which should have directories of grant foundations.
- Once a specific source for a potential grant has been identified, the requestor needs to review the guidelines and request an application from the agency or foundation that provide funds for programs which match the stated needs. The requirements of most grant proposals are similar, but some foundations request additional information. The guidelines or an application will list deadlines for applying for funding.
- It is often mandatory to write a summary of your grant request. This should be less than a page long and outline how much money is being requested, what it will be used to buy, and how it will improve the lives of students.
- The requestor needs to create a need or problem statement. Explain why the funding is needed in the classroom. Is existing equipment horribly out-of-date and not able to run the programs needed to help students? Are students disadvantaged, so the technology will help them do better in school? Are the students in special programs that require additional technology to help them learn more effectively than traditional teaching? To get funds the request must show that there is a real need for what is being requested.
- It is important to map out an end goal and an objective. Foundations need clear goals and data-based objectives so they can quantify how their money will help. Let the agency or foundation know what needs to be accomplished, including the specific results. For instance, a goal may be to improve literacy and the objective might be to have 85% of students pass a standardized literacy test.
- The requestor must outline the methods and activities tied to the budget. It is helpful to list specific steps that show how the technology will help achieve the stated goals. When will it be used? How often will it be used? How will it be used? What specific tasks will be done with the equipment?
- The foundation will need to know how the requestor will evaluate how well the technology equipment reached the goals and produced the intended results. Provide quantitative results. Let the foundation know what sorts of records and data will be collected, any tests or measurements that will be conducted, and anything else that can provide information that shows the results of your efforts.
- It is typically mandatory to report other funding sources. Most foundations do not want to be the sole supporter of a program. They want to know that there are other funds whether they are donations, fundraisers, other grants or service fees. If there's a need for continued funding to support the technology, describe how it will be obtained.
- The agency or foundation will request a budget of the cost of the technology being targeted. Most foundations want to see the total program budget that includes direct and indirect expenses, overhead costs, as well as income earned or contributed including in-kind donations or matching of funds.

Local Technology Plan Resources

One of the overarching goals of the state’s educational technology plan is to provide the local school districts with a framework that can be used to create their unique technology plans. Relevant data points were gathered for the local school districts to leverage along with templates that may add value gathering and disseminating data to local and state officials. The state will continue to work with the school districts to ensure local technology plans are created and posted to the district’s websites and the content meets the state’s underlying standards. This section is intended to provide data that may be useful in the creation of the local technology plan.

Key Points for Local School District Plan Creation

- Local planning should be carried out by a local based technology planning team that is representative of stakeholders in the local educational process. Teachers, administrators, parents, community members, technology staff, and students should be represented appropriately on the committee.
- Where possible, planning should be done in conjunction with other key strategic plans at the district and school level. For instance, school improvement plans; strategic plans, action plans and school-wide plans may all have elements that inform the technology plan.
- Local planning teams should write *at least one goal for each of the component areas*. More than one goal per area (e.g., one that focuses on teachers and another on students) is possible, but not mandatory. Whenever possible, reflect on goals from previous plans, and adapt them when appropriate to the four current categories.
- Each goal should have a related action plan that details the action steps necessary to achieve the goal *over the course of the planning period*. Some action steps may last only a portion of the planning years, while others may take longer to complete. There is no limit to the number of action steps that can be created for each goal.
- Every action in the plan should include consideration of related *staffing, technology infrastructure, budget, and professional development* needs. Many districts will find it useful to aggregate, for example, the staffing components of each goal into a single staffing plan. This will make it possible to view the comprehensive infrastructure plan as a single document.
- For each goal in the plan, teams should develop and include one or more *indicators of success*. The data types listed in the “Data Collection” column of each action plan, for each action step, should support these indicators.

USAC Requirements for Technology Plans (E-Rate)

The Universal Service Administration Company (USAC), a division of the Federal Communications Commission, has requirements for technology plans that are the basis for E-Rate reimbursements. These are the stated requirements for technology plans:

1. The plan must establish clear goals and a realistic strategy for using telecommunications and information technology to improve education or library services;

2. The plan must have a professional development strategy to ensure staff know how to use these new technologies to improve education or library services;
3. The plan must include an assessment of the telecommunication services, hardware, software, and other services that will be needed to improve education or library services; and
4. The plan must include an evaluation process that enables the school or library to monitor progress toward the specified goals and make mid-course corrections in response to new developments and opportunities as they arise.
5. Suggested budget, though no longer required for E-Rate under USAC rules.

This plan uses goal headings that match and address these requirements under USAC. The goal headings in this plan are written to be useful in terms of a visionary technology program that can be improved and built upon over time.

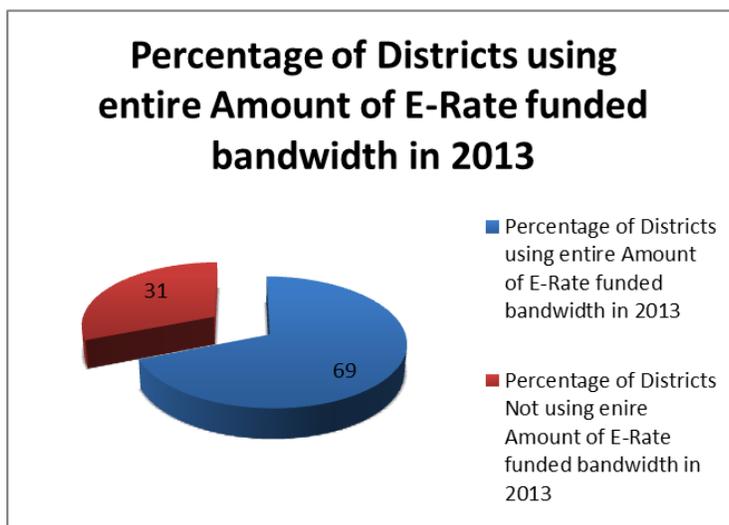
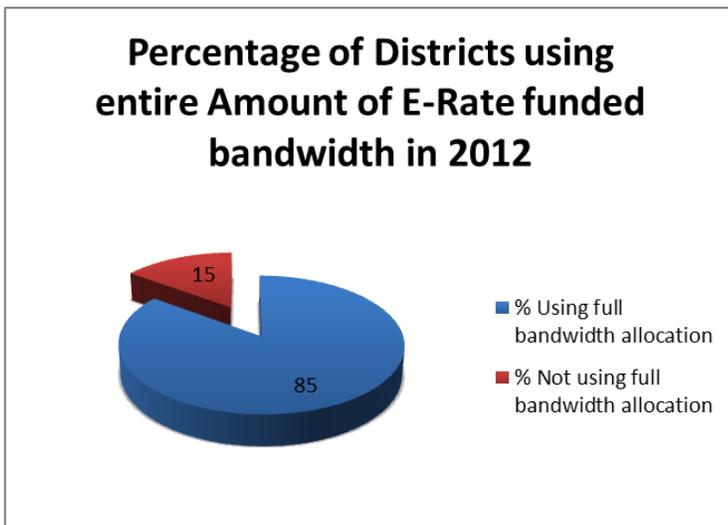
The crucial piece for the review and approval process is to be sure that the USAC requirements have been addressed in the overall plan. The approval process with the South Carolina Department of Education is bound to uphold the USAC requirements in its role as state plan approval entity. Please be sure these requirements are clear in each of the broader goal areas. It is suggested that plan developers highlight or otherwise clarify the strategies and actions that directly address USAC requirements. It will make the reviewing and approval process go more smoothly.

The following table provides a “mapping” of USAC requirements to the overall goal areas. These are quite general and represent some areas where they would logically fit. Use the table as appropriate. As long as the USAC requirements are within the plan, the approval process will not hinge on the strategies and actions following the table below. It is simply provided as a reference.

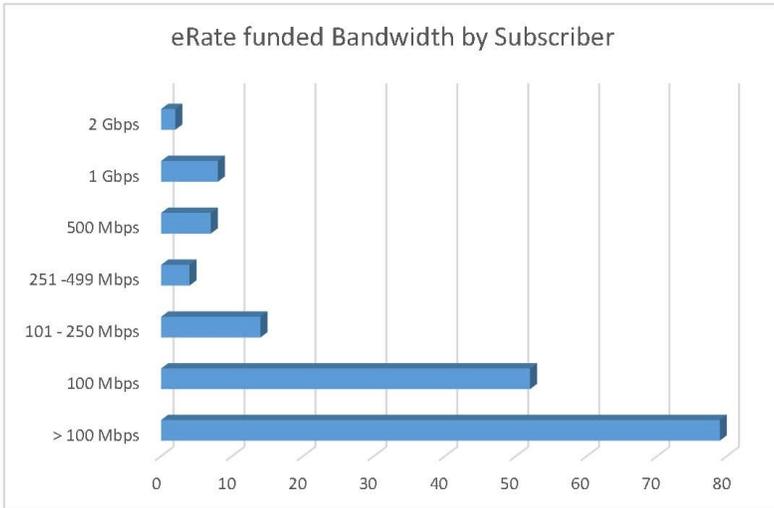
Here is a quick reference table that may help in matching where your USAC requirements can fit in the goals laid out in this plan:

USAC language	Areas that could be covered under this	Goal Areas that are appropriate
“A strategy for using telecommunications to improve education or library services.”	<ul style="list-style-type: none"> • Broadband needs • Videoconferencing • Cell phone/landline • Acquisition of hardware, devices 	Student Centered Learning Flexible Learning
“...must have a professional development strategy...”	Any and all professional development: <ul style="list-style-type: none"> • In-service days • Technical integrationists, Technical coordinators, any support positions • After school workshops • Online courses, webinars, etc. 	Leadership in Student Centered Environments Flexible Learning Engaged Community Partners

USAC language	Areas that could be covered under this	Goal Areas that are appropriate
"...assessment of telecommunications services, hardware, software."	<ul style="list-style-type: none"> • Broadband needs • Devices for students/teachers • Web services • Cloud services • Budgeting plans 	Student Centered Learning Flexible Learning
"....must include an evaluation process...to monitor progress toward the specified goals..."	<ul style="list-style-type: none"> • Evaluating the plan • Create actions that evaluate success of each action 	Comes under all of the goals. There should be evaluation strategies throughout.



These two charts illustrate that not all of the state’s school districts are fully utilizing their E-Rate funded bandwidth allocation. Additional analysis is necessary to determine why the districts have not yet taken full advantage of their available E-Rate funds and what steps can be taken to help them to implement these improvements to their local networks.



The amount of E-rate funded bandwidth varies widely across the subscribers in South Carolina. In 2013, more than half of all subscribers had E-rate funded bandwidth of 100 Mbps or less.

Acknowledgements

The development of the 2014 Education Technology Plan was coordinated by the Total Quality Management Office located within the Chief Information Executive Office at the South Carolina Department of Education and represents the work and collaboration of numerous stakeholders. Contributors to the plan include individuals and organizations representing district technology directors, administrators, teachers, the South Carolina Department of Education, various state agencies, business, the community, and families. The authors extend sincere appreciation to all those who helped shape this vision for educational technology in South Carolina.

South Carolina's leaders are preparing the state to provide companies and investors with the raw materials that they need to succeed. The state is doing this by providing both the technology infrastructure and the ever more highly-skilled workforce that businesses require now and will continue to need in the foreseeable future. In order to capitalize on this advantage, South Carolina's schools must adequately prepare the future workforce for the knowledge-based jobs that will utilize cutting-edge information technology.

Representatives from multiple districts and individual schools were interviewed to identify how a statewide educational technology plan could be written that would be meaningful to their unique needs and challenges. This document will provide a framework for districts across the state to leverage the contents while writing their own technology plans. Data points were gathered from hundreds of different areas and summarized into common themes that can be leveraged as needed based on the specialized needs of the reader.

Interviews were conducted with representatives from South Carolina's community colleges, state colleges and multiple local businesses that are currently providing technology related services to schools across the state. The intent of these interviews was to identify opportunities to expand collaboration and service offerings while allowing the local school districts to maintain their operating autonomy. The authors of this document appreciate the honest insight provided during the interview process and the willingness to share local challenges and success stories with the broader community.

Interviews and Working Groups

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Appendices

Appendix A - Sample District Technology Plan

To ensure each district is provided adequate funding for telecommunication, Internet, and network services, there must be an association between the proposed physical infrastructure of the information technology and the plan for professional development, curriculum reform, and service improvements. Each district is required to provide an update to approved plans and budgets each fiscal year to maintain compliance with E-Rate regulations. The following links provide samples of good stewards who have successfully met the requirements to define and implement a district technology plan. This framework is recommended for districts to follow when building their technology plans.

Please refer to the following link: <http://ed.sc.gov/agency/programs-services/185>.

Appendix B - NCLB and The Partnership for 21st Century Skills

This section discusses how the No Child Left Behind Act is being affected by the need to prepare children in the United States for a modern, 21st century workforce. The content includes the Partnership's Statement of Principles, which calls for the integration of 21st century skills into NCLB standards, professional development, and assessment as well as placing additional emphasis on information and communication technology literacy and new 21st century content such as global awareness and financial and business literacy.

Additional Information about the Partnership for 21st century skills can be found at <http://www.p21.org>.

Appendix C - Effective Local Technology Plan Evaluation

The Schools and Libraries (E-Rate) Program provides support to help eligible schools and libraries obtain telecommunications, telecommunications services, Internet access, internal connections, and basic maintenance of internal connections at affordable rates.

District E-Rate allocations are calculated based on the number of students eligible for free and reduced price lunches. Districts are eligible to apply in a partnership with the state E-Rate or they may file for E-Rate funding on their own. Districts that choose to file with the state E-Rate are required to meet the state's CIPA Compliance.

Districts are required to submit a district technology plan that is reviewed and scored based on six requirements:

- Establish clear goals and realistic strategy for using telecommunications and information technology to improve education or library services.

- Provide a professional development strategy to ensure that staff know how to use the new technologies to improve education.
- Outline an assessment of the telecommunications services, hardware, software, and other services that will be needed to improve education.
- Project a sufficient budget to acquire and maintain the hardware, software, professional development, and other services for improved education.
- Define and monitor an evaluation process so that districts and schools monitor progress toward the specified goals.

The E-Rate [website](#) provides guidelines that demonstrate the E-Rate funding requirements. This framework is recommended for districts to follow when updating and submitting their technology plans.

Appendix D - Guidelines for Managing the Security of Mobile Devices in the Enterprise - NIST (NIST)

Mobile devices come in all shapes sizes and capabilities, but all of these devices have one thing in common: they are increasing in use. We find them in the schools with increasing frequency and levels of ubiquity. These devices are truly impressive in terms of their capabilities and dwarf the computing power that devices of even ten years ago had (remember the Palm Pilot?). Unfortunately, the increased computing power of these devices, their large numbers in the schools, and the ease with which they can connect to and interact with local networks are factors which pose serious IT support and security concerns. This white paper from the National Institute of Science and Technology (NIST)¹¹ organization provides details both on the nature of the challenges that need to be addressed and outlines some effective, practical solutions to these problems that can be implemented today.

[NIST Guidelines for Securing Mobile Devices](#)

http://www.nist.gov/customcf/get_pdf.cfm?pub_id=913427

Appendix E - Internet Safety Data Points

Help your middle school child to develop safe online behavior

In the middle school years, teens begin social networking, creating and uploading comments (blogs, videos, pictures), downloading music and other files, researching subjects for school, chatting with Instant. Message tools, video-chatting, and more. In short, middle schoolers are leading digital lives. At this age, the Internet is no longer a solitary or passive experience. For preteens and teens, the Internet is social. Teens are using the Internet to express themselves and to experiment anonymously with different identities. While the desire to strike out on their own is normal and common for children of this age, these children and young adults still need parental guidance (sometimes from a respectful distance) on how to conduct themselves safely online.

¹¹NIST is a federal agency whose mission is to promote innovation and fruitful competition through the development and advocacy of technology, standards and science. To learn more about NIST, please see <http://www.nist.gov/>

Why Internet safety matters

Young teens don't yet have an "off" switch in their brains. That means that they often act impulsively. This lack of impulse control combined with online anonymity could lead middle school children toward dangerous behaviors. These behaviors could include cyberbullying, inappropriate photo or video uploads, illegal downloads, meeting strangers and even cheating. Because socializing is so important to young people, online interactions can become intense - whether they're playing games, chatting with friends, or working together on a project. Teens are creating a digital footprint that can last a long time in cyberspace. Things they post can be forwarded by others and viewed by vast anonymous audiences. Children should be taught to self-reflect before they self-reveal information. This will make their online experiences safer. The first step to keeping preteens and teens safe on the Internet is to find out what they're doing online to make sure they're behaving respectfully and responsibly. Inform them about what is appropriate to say to others, what kind of content is okay to upload and download, and what kinds of interactions are important to avoid. Provide them with both examples of appropriate behaviors as well as those that are inappropriate and not acceptable. Helping children to become responsible digital citizens is what will ultimately keep them safe online.

Internet safety basics

Never share names, schools, ages, phone numbers, or addresses.

Never open an email from a stranger – it may contain viruses that can harm a computer.

Never send pictures to strangers or view pictures that strangers send to them.

Keep passwords private (except from your parents).

Tell a trusted adult if something mean or creepy happens on the Internet.

Strategies for responsible - and safer - online life

Visit age-appropriate sites. Find sites that promote learning and creativity and that appeal to the interests that children have. Review popular web sites before children visit them unsupervised. Despite what they might tell you, social networks like MySpace or Facebook are not meant for middle school students.

Minimize chatting with strangers. Tell children that people aren't always who they say they are on the Internet. Anyone can pose as a "buddy of a buddy." When playing online games with people they don't personally know, children should be careful not to disclose anything personal about themselves or others.

Help kids think critically about what they find online. Young people need to know that not everything they see is true. Safe-search settings and filtering software should be considered when the internet is accessed by younger children. One way to double-check internet activity is to review browser histories to see where children have been and what their consistent behaviors have been.

If they wouldn't do it in real life, they shouldn't do it online. Remind children to apply the Golden Rule to the internet. Don't say mean things online, and don't cheat in games, whether online or at school.

Agree on downloads. What music is okay to listen to and purchase? Which video sites are appropriate? Which ones are inappropriate? Don't just hand out credit card or gift certificate information to young children. If they need to buy something, parents or adults should be involved in the transaction.

Talk about privacy. Remind children that when they post something online, they lose control of it. It can be cut and pasted and sent around the Web. Show children and young adults where privacy settings are on their favorite sites and help them to think about the settings that they should use, consistently.

Make sure kids feel safe reporting bad behavior. Let children know that if anything suspicious, mean, or scary happens, that they should report it immediately. Make it clear that they will not get in trouble if they tell a trusted adult about this event.

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