

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

In the Matter of)
)
Modernizing the E-Rate Program for) WC Docket No. 13-184
Schools and Libraries)

**STATE EDUCATIONAL TECHNOLOGY DIRECTORS ASSOCIATION
(SETDA) COMMENTS**

September 16, 2013

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E-RATE MODERNIZATION URGENTLY REQUIRED TO ADDRESS K-12 BROADBAND INFRASTRUCTURE NEEDS

“In the 21st century, schools can't be throw-backs to the state of education fifty, twenty, or even ten years ago....Most young people can't remember a time without the internet. But right now, many students' learning experiences in school don't match the reality outside of school. We need to bridge this gap. We need to make school more relevant and engaging. We must make the on-demand, personalized tech applications that are part of students' daily lives, a more strategic part of their academic lives. If we fail to do this for all our students, we'll fail to prepare them for the future that awaits them, and the skills the world will require of them.”

- U.S. Secretary of Education Arne Duncan¹

It is a simple fact that in 2013 access to high-speed broadband is now as vital a component of K-12 school infrastructure as electricity, plumbing, air conditioning and heating. The same tools that have transformed and enriched our personal, civic and professional lives are dramatically improving learning experiences intended to prepare today's students for college and 21st century careers. Given that bandwidth capacity determines which online content, educational applications, and digital learning services students and educators can use effectively in the classroom, it is in the national interest to ensure a baseline broadband capacity in and throughout all schools and to incent continued digital learning innovation.

Since its formal launch in 1998, the E-rate program has been an astounding public policy success in helping public and private schools and libraries get connected to the internet. Fifteen years later, the E-rate finds itself on the verge of an inflection point that could herald dramatically improved student success in local communities from coast to coast.

It is for this reason that the State Educational Technology Directors Association (SETDA) is pleased to submit our comments today to the Federal Communications Commission (Commission) in response to the Notice of Proposed Rulemaking (NPRM) on E-rate Modernization (WC Docket No.13-184). By offering a forward-thinking set of principles and select specific program enhancements, SETDA proposes an approach to modernizing E-rate that would better meet the evolving needs of all schools and students in a digital age. At the same time, we believe our approach preserves the unique and important roles of federal, state and local governments and the private sector.²

¹ Duncan, A. (March 3, 2010). *Using Technology to Transform Schools*—Remarks by Secretary Arne Duncan at the Association of American Publishers Annual Meeting. Online at: <http://www2.ed.gov/news/speeches/2010/03/03032010.html>

² As the principal non-profit membership association representing educational technology leadership in U.S. state and territorial education agencies, we have limited our comments on E-rate modernization to the treatment of public K-12 schools. Other E-rate

On behalf of the SETDA membership, thank you for your leadership and vision in launching this effort to modernize the E-rate. Broadband is *the* enabling technology of modern learning environments, and broadband concerns should never be a factor when teachers or students are planning for educational activities. Unless we swiftly and systematically move to address the dearth of bandwidth capacity in schools nationwide, we will find it to be the limiting factor in school reform and improvement.

About the State Educational Technology Directors Association (SETDA)

Founded in 2001, SETDA is the principal non-profit membership association representing U.S. state and territorial educational technology leaders. Our mission is to build and increase the capacity of state and national leaders to improve education through technology policy and practice.

SETDA has documented the critical importance of broadband for K-12 education and urgent need for E-rate modernization in a series of two groundbreaking reports: *High-Speed Broadband Access for All Kids: Breaking through the Barriers* (2008) and *The Broadband Imperative: Recommendations to Address K-12 Education Infrastructure Needs* (2012).³ In these reports, SETDA became the first national education organization to articulate broadband capacity targets for the nation's schools, as well as to issue a call to action to address the out-of-school broadband access issues facing both students and educators.

SETDA offers a free broadband speed test tool for schools at http://assess4ed.net/speed_test, has compiled detailed state-by-state educational broadband policy and practice resources in its State Education Policy Center (SEPC) at <http://sepc.setda.org>, and published in February 2013 an independent technical analysis of school speed test tool performance by the UK-based internet services company, Netcraft, available at <http://setda.org/web/guest/schoolspeedtests>.

stakeholders are in a better position to advocate for the needs of private schools, libraries, and other program participants. Nonetheless, we would assert that the needs of public K-12 schools should be first and foremost in the Commission's deliberations and that our proposed principles for E-rate modernization are broadly applicable to all program participants and stakeholders.

³ Jones, R.B. (2008). *High-Speed Broadband Access for All Kids: Breaking through the Barriers*. Washington, DC: State Educational Technology Directors Association (SETDA). Available online at: <http://www.setda.org/web/guest/2020/broadband>. Fox, C., Waters, J., Fletcher, G., & Levin, D. (2012). *The Broadband Imperative: Recommendations to Address K-12 Education Infrastructure Needs*. Washington, DC: State Educational Technology Directors Association (SETDA). Available online at: <http://setda.org/web/guest/broadbandimperative>.

Moreover, SETDA works in partnership with other organizations to help assess and address issues of K-12 broadband access and use. For instance, SETDA advises both the Partnership for Assessment of Readiness for College and Careers (PARCC) and the Smarter Balanced Assessment Consortium (Smarter Balanced) on issues of school technology and infrastructure readiness to support the transition to online assessments by states, a major component of which involves support for the joint PARCC-Smarter Balanced Technology Readiness Tool (www.techreadiness.org) being used by thousands of school districts nationwide. And, since September 2012, SETDA has worked with the national non-profit Education SuperHighway to help states develop state-specific implementation plans of the Education SuperHighway speed test tool in exchange for access to speed test data collected about schools in their states.

As part of its mission, SETDA also conducts research and analysis on broader digital learning trends, which are driving the increased demand for broadband in K-12 education. Recent and relevant reports include:

- *Technology Readiness for College and Career Ready Teaching, Learning and Assessment* (2012), which offers states and school districts guidance on educational technology procurement, policy and planning in support of school reform and improvement priorities;⁴
- *Implementing Online Assessments: Pathways to Success* (2013) and *Technology Requirements for Large-Scale Computer-Based and Online Assessment: Current Status and Issues* (2011), which both shed light on the large-scale shift from paper-and-pencil based student assessment to online assessment;⁵
- *Out of Print: Reimagining the K-12 Textbook in a Digital Age* (2012), which details the large-scale shift toward digital and online instructional resources and away from traditional print textbooks;⁶ and,

⁴ SETDA (2012). *Technology Readiness for College and Career Ready Teaching, Learning and Assessment*. Washington, DC: SETDA. Available online at:

http://www.setda.org/c/document_library/get_file?folderId=350&name=DLFE-1628.pdf

⁵ Fletcher, G & Storandt, B. (2013). *Implementing Online Assessment: 4 Pathways to Success*. Washington, DC: SETDA. Available online at:

<http://assessmentstudies.setda.org/>. Levin, D., Fletcher, G., and Chau, Y. (2011).

Technology Requirements For Large-Scale Computer-Based And Online Assessment: Current Status And Issues. Washington, DC: SETDA. Available online at:

http://setda.org/c/document_library/get_file?folderId=344&name=DLFE-1336.pdf

⁶ Fletcher, G., Schaffhauser, D, & Levin, D. (2012). *Out of Print: Reimagining the K-12 Textbook in a Digital Age*. Washington, DC: SETDA. Available online at:

http://www.setda.org/c/document_library/get_file?folderId=321&name=DLFE-1598.pdf

- *Transforming Data to Information in Service of Learning* (2013), which describes current major K-12 data standards and interoperability initiatives and their connection to school reform and improvement strategies being employed by states and school districts.⁷

As the principal, non-profit membership association representing the educational technology leadership of state and territorial departments of education, our membership is in a unique position to see the inter-related nature of technology-related school reform and improvement trends across the states and the imperative need to address K-12 broadband infrastructure issues at the national level.

Universal and Robust School Broadband Capacity Essential to School Reform and Improvement

"We share a vision for education in America. Our vision is an education that maximizes every child's potential for learning, prepares every child with the knowledge and skills to succeed in college and careers, and launches every child into the world with the ability to pursue his or her dreams. By unleashing the power of digital learning, America has the ability to realize that vision today."

- Former Governor Jeb Bush (FL) and Former Governor Bob Wise (WV)⁸

Digital learning is necessary to approach the higher levels of critical thinking set forth in new college and career ready state standards, to meet the individual needs of every student, to support and enhance teachers in improving their practice, and to realize cost-savings and efficiencies in school operations. For these reasons, investing in school broadband infrastructure is an investment in school reform and improvement. Universal access to robust broadband would help:

- Ensure all students – regardless of zip code – have access to high-quality courses for college and 21st century careers, including foreign language, Advanced Placement (AP)/International Baccalaureate (IB), and science, technology, engineering, and mathematics (STEM) courses.
- Improve teacher practice, reduce waste, and better target resources on educational improvement by ensuring access to real time data to inform teaching and learning and school operations.
- Develop better student assessments that allow teachers and parents to identify and focus on individual needs and talents throughout the school year.

⁷ Fox, C., Schaffhauser, D., Fletcher, G., & Levin, D. (2013). *Transforming Data to Information in Service of Learning*. Washington, DC: SETDA. Available online at: http://www.setda.org/c/document_library/get_file?folderId=361&name=DLFE-1657.pdf

⁸ Foundation for Excellence in Education (December 2010). *Digital Learning Now!* Tallahassee: Author. Online at: <http://www.digitalllearningnow.com/>

- Address the lack of engaging instructional materials, while ensuring they are content-rich, up-to-date, accessible to all students, and better suited to informing and supporting instruction.

Indeed, if we are serious about holding all students to high academic standards, it will be vital to leverage the power of digital learning to improve instruction, assessment and professional development in every school and classroom in the nation.

While some are impatient with the pace of technology adoption in K-12 education, the speed and scope of change has been remarkable by any other standard of educational transformation or reform. Moreover, prior investments in school technology stemming from and spurred on by E-rate and related federal and state education programs have done nothing less than lay the foundation for a new and more powerful generation of technological opportunities by helping to ensure a critical mass of school computers and near universal internet connectivity.

The emerging work of states and districts in 2013, however, is fundamentally different from those arising from prior efforts. Earlier efforts too often treated technology as supplemental to the ongoing work of schools, voluntarily incorporated in classrooms by individual teachers or visionary school leaders. Such efforts have proven difficult to sustain over time and to scale up across districts and states. In contrast, today's efforts to leverage digital learning represent a rethinking of core public education system functions with technology as an integral component, not unlike the way the rise of spreadsheets and databases have transformed many businesses.

Consider the following aspects of K-12 education's 'shift to digital':

The shift from supplemental use of school broadband to daily reliance on use by students and teachers. Increasingly, the expectation of teachers and students is of reliable, ready access within classrooms to broadband. In recognition of this fact, the vast majority of states and school districts as of 2008 were already deploying an increasing array of online digital learning tools for daily use by teachers and students both:

Exhibit 1. Percent of School Districts Offering Teachers Access to Select Digital Learning Tools

Digital Learning Tools	...to Some or All Elementary School Teachers	...to Some or All Secondary School Teachers
Access to online district resources	95%	95%
Access to electronic administrative tools	93%	97%
Server space for posting their own web pages or class materials	87%	88%
Online student assessment tools	85%	86%
Online curricula	80%	82%
Opportunities for distance learning	77%	79%
Access to course management and delivery software	69%	70%
Remote access to school or district software	55%	57%

Source: U.S. Department of Education (2009)⁹

Exhibit 2. Percent of School Districts Offering Students Access to Select Digital Learning Tools

Digital Learning Tools	...to Some or All Elementary School Students	...to Some or All Secondary School Students
Electronic storage space on a server	79%	90%
Online access to the library catalog	78%	84%
Online curricula	66%	78%
Online access to databases	70%	72%
Opportunities for distance learning	52%	77%
Email accounts used for schoolwork	32%	47%
Remote access to most software used in their classes	19%	25%

Source: U.S. Department of Education (2009)¹⁰

The increasing reliance on access to and use of these digital learning tools is widely supported by teachers in polling: 95% of teachers agree that educational technology engages “my students in learning” and 93% of teachers agree that educational technology helps “my students’ academic achievement.”¹¹ In fact, sizable majorities of teachers see a large range of instructional benefits to the increased use of the internet in teaching and learning:

⁹ Gray, L. and Lewis, L. (2009). *Educational Technology in U.S. Public School Districts: Fall 2008* (NCES 2010-003). National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education. Washington, DC. Available online at: <http://nces.ed.gov/pubs2010/2010003.pdf>

¹⁰ Ibid.

¹¹ Scholastic and the Bill & Melinda Gates Foundation (2010). *Primary Sources: America’s Teachers on America’s Schools*. Online at: <http://www.scholastic.com/primarysources/download.asp>

Exhibit 3. Percent of Teachers in Agreement with Select Statements Regarding the Instructional Benefits of Broadband Access

Instructional Benefits to Broadband Access	Percent of Teachers in Agreement
Today's digital technologies allow students to share their work with a wider and more varied audience.	96%
The internet encourages learning by connecting students to resources about topics of interest to them.	90%
Today's digital technologies encourage greater collaboration among students.	79%
Today's digital technologies encourage student creativity and personal expression.	79%
The multimedia content available online today immerses students more fully in topics they study.	76%
The availability of digital content has broadened my students' worldviews and perspectives	72%

Source: Pew Internet Project (2013)¹²

Importantly, the increasingly reliance on digital learning tools for meeting key instructional goals, such as student learning in core academic subjects, is demonstrating returns. Recent data from the 'Nation's Report Card' – the National Assessment of Education Progress (NAEP) – perhaps best underscores this relationship. In the 2011 NAEP Writing administration, researchers found a clear and positive relationship between student performance in writing and use of technology: students who had greater access to technology in and out of school and had teachers that required its use for school assignments, used technology in more powerful ways to write and scored significantly higher on the NAEP writing achievement test.¹³

The shift from print textbooks to digital instructional materials. The traditional approach to developing, selecting, disseminating, and using print instructional materials in the nation's classrooms is increasingly out of sync with the ways in which technology is reshaping the wider world and the expectations of today's students and teachers. As the North Carolina eLearning Commission noted, the advantages of digital content are compelling and offer:

- **Up-to-date information** by updating and publishing additional information for greater accuracy and timeliness
- **Multimedia and interactivity** that allows for more and better student engagement
- **Customization** to address individual student needs

¹² Purcell, K., Heaps, A., Buchanan, J., and Friedrich, L. (2013). *How Teachers Are Using Technology at Home and in Their Classrooms*. Washington, DC: Pew Internet and American Life Project. Available online at: <http://pewinternet.org/Reports/2013/Teachers-and-technology.aspx>

¹³ National Center for Education Statistics (2012). *The Nation's Report Card: Writing 2011*(NCES 2012–470). Institute of Education Sciences, U.S. Department of Education, Washington, DC. Available online at: <http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2012470>

- **Adaptability** for special learning needs
- **Student annotations** incorporating digital tools without damaging the materials
- **Availability** guaranteeing access anytime, anywhere
- **Potential cost savings** over time
- **Increasing competition** through altering business models and encouraging a variety of providers
- **Open educational resources (OER)** to encourage reuse, remixing, and redistribution of quality content that can be customized for individual students
- **Health benefits** by lightening the backpack
- **Access to resources** being generated from foundations, states, new collaborative partnerships, and teachers themselves.¹⁴

In response – in a time of increasingly tight budgets and at the recommendation of SETDA – many states and school districts have ceased the duplicative and uncoordinated purchase of both print and digital instructional materials to pursue a more innovative digital-first strategy grounded in a renewed attention to quality and value for money. In recent years, over 22 states have changed policies or launched initiatives that encourage the use of digital content and, in some cases, open educational resources (OER) in lieu of traditional proprietary print textbooks.¹⁵ Momentum for these changes will continue to grow with investments in broadband, making it easier for publishers of all kinds to enter the market. In addition, teachers and students are both accessing freely available content over the internet and creating their own.

According to the National Center for Education Statistics, as of 2008, over 6 in 10 schools (65%) were already using broadband to provide access to high-quality digital content – a development that has only accelerated since that time.¹⁶ And, teacher views on the shift to online instructional resources from traditional textbooks are unequivocal: over 9 in 10 teachers agree that digital resources like classroom technology and Web-based programs help academic achievement and engage students in learning, while holding dramatically more negative views of the value of traditional textbooks. In fact, a mere 12 percent of teachers strongly agree that traditional textbooks help student achievement and only 6 percent strongly agree that textbooks engage students in learning.¹⁷

¹⁴ Public Schools of North Carolina. (2012). *Recommendations from the eLearning Commission for Digital Education Resources for K-12* [PDF document]. Available online at: <http://www.ncpublicschools.org/docs/sbe-archives/meetings/2012/02/lfi/02lfi04.pdf>

¹⁵ SETDA (2012). *Out of Print: Reimagining the K-12 Textbook in a Digital Age*.

¹⁶ Gray, L., Thomas, N., and Lewis, L. (2010). *Educational Technology in U.S. Public Schools: Fall 2008* (NCES 2010-034). National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education. Washington, DC. Available online at: <http://nces.ed.gov/pubs2010/2010034.pdf>

¹⁷ Scholastic and the Bill & Melinda Gates Foundation (2010). *Primary Sources: America's Teachers on America's Schools*.

The shift from paper-and-pencil assessments to enhanced online tests. According to SETDA research, as of June 2011, 33 states were already employing some degree of online and computer-based assessment as part of their accountability systems – a trend that is rapidly accelerating to the vast majority of states with the development of new student assessments of college and career-ready state standards by PARCC and Smarter Balanced, which will be delivered wholly online for the first time in the 2014-15 school year.¹⁸

There are compelling advantages to online assessment systems, when compared to current paper-and-pencil approaches. Chief among online testing's advantages is the ability to capture more robust data about student knowledge, skills and abilities across the full range of content standards through interactive items that can be reliably scored for low cost. Online assessment can also ensure that results are made available to educators and students in time to intervene and adjust instruction for students having difficulty. In addition, online assessment can be a marked improvement over paper-based tests for ensuring security of both test items and student responses. Indeed, if the aim is to implement better tests that measure achievement of higher college- and career-ready state standards, it is imperative that the nation completes the shift to online assessment.¹⁹

According to the National Center for Education Statistics, the vast majority of schools already use broadband to deliver online student assessment (72 percent of schools), as well as assessment results and data for teachers to individualize instruction (87 percent of schools).²⁰

The shift from face-to-face workshops to online professional development.

Effective professional development ensures that school districts can attract and retain qualified professionals in the education system. Moreover, teachers need access to a variety of support mechanisms to integrate digital learning tools into their classrooms, as well as to help organize their lessons to effectively meet the needs of individual students.²¹

¹⁸ SETDA (2011). *Technology Requirements For Large-Scale Computer-Based And Online Assessment: Current Status And Issues*.

¹⁹ Levin, D. and Fletcher, G. "Will Schools Be Technology-Ready to Administer Nation's New Assessments?," pp. 44-47 in Center for K-12 Assessment & Performance Management at ETS, Ed. (2013). *Coming Together to Raise Achievement: New Assessments for the Common Core State Standards*. Austin, TX: Educational Testing Service (ETS). Available online at: http://www.k12center.org/rsc/pdf/Coming_Together_June_2013.pdf

²⁰ Gray, L., Thomas, N., and Lewis, L. (2010). *Educational Technology in U.S. Public Schools: Fall 2008* (NCES 2010-034).

²¹ Duffey, D. and Fox, C. (2012). *National Educational Technology Trends 2012: State Leadership Empowers Educators, Transforms Teaching and Learning*. Washington, DC: SETDA. Available online at: <http://www.setda.org/web/guest/nationaltrends2012>

Yet, face-to-face professional development and other traditional approaches to enhancing teacher learning have proven to be expensive and less than effective.²²

In recent years, there has been an increasing recognition and interest in the importance of online professional learning opportunities for educators, including especially in the promise of online communities. A review and synthesis of the research about online communities found documented evidence that these communities can support systematic, transformative change in teaching and learning.²³ Indeed, if educators have ongoing access to the internet, they have a variety of resources from lesson plans and videos of "best practices," to podcasts from experts and online courses. Perhaps more important, they have access to each other. Consider the following research on increasing teacher reliance on broadband for their own professional learning:

Exhibit 4. Percent of Teachers Who Engage in Various Online Professional Learning Opportunities at Least Weekly

Online Professional Learning Opportunity	Percent of Teachers Who Engage in Practice at Least Weekly
Look online for content or material that engages students	84%
Look for material online to help create lesson plans	80%
Receive email alerts or online newsletters that follow developments in the field	80%
Look online for the latest research in the field or the subjects they teach	57%
Interact online with other teachers to get or give advice on handling classroom issues	45%
Use a social networking site like Ning or Twitter to exchange ideas with other teachers	18%

Source: Pew Internet Project (2013)²⁴

The rise of new school models enabled by increasing access to broadband. In addition to supporting the transformation of many of the building blocks of traditionally organized schools and classrooms, access to broadband is enabling innovation in the fundamental structure of schools themselves. The most prominent trends in this respect

²² Darling-Hammond, L., Chung Wei, R., Andree A., Richardson, N., and Orphanos, S. (2009). *Professional Learning in the Learning Profession: A Status Report on Teacher Development in the United States and Abroad*. Washington, DC: National Staff Development Council and The School Redesign Network at Stanford University. Available online at: www.learningforward.org/docs/pdf/nsdcstudy2009.pdf

²³ U.S. Department of Education, Office of Educational Technology (2011). *Connect and Inspire: Online Communities of Practice in Education*. Washington, DC: Author. Available online at: http://connectededucators.org/report/files/2011/03/0143_OCOP-Main-report.pdf

²⁴ Purcell, K., Heaps, A., Buchanan, J., and Friedrich, L. (2013). *How Teachers Are Using Technology at Home and in Their Classrooms*.

has been the explosive growth in online and blended learning opportunities for students, as well as the rise of the movement toward competency-based, personalized learning.

To date, a total of 36 states – according to the National Governors Association – have passed policies that provide school districts and schools with some flexibility for awarding credit to students based on mastery of content and skills as opposed to seat time.²⁵ Moreover, as of the 2009-2010 school year, a majority (55 percent) of school districts were enrolling students in distance education courses, totaling over 1.8 million course ‘enrollments’ primarily at the high school level.²⁶ In fact, an increasing number of states have moved to require online courses as a condition of high school graduation.²⁷

The rise of ‘big data’ in informing educational decision-making. In contrast to other major technology-driven shifts in the role of core education system functions, the rise of data-driven decision making systems is fundamentally a new and powerful opportunity that technology and broadband access brings to the table.

Aggregate data accumulated over years and from multiple sources can divulge trends and point the way to success for particular groups of students and/or for program evaluation. Likewise, information generated through digital learning, computerized assessments, grade book programs, learning management systems, and other applications can track a specific student’s progress over time. Instructors can use formative assessments—even those as brief and frequent as pop quizzes—to redirect instruction on the spot and help students succeed with learning. Information can be made accessible through real-time dashboards and other user-friendly reporting tools.²⁸

For this reason, states and districts continue to make investments in upgrading their capacity to generate information for use in school reform and improvement by policymakers and educators alike. Indeed, as of 2008, 85 percent of schools were already

²⁵ National Governors Association (2012). *State Strategies for Awarding Credit to Support Student Learning*. Washington, DC: Author. Available online at: <http://www.nga.org/cms/home/nga-center-for-best-practices/center-publications/page-edu-publications/col2-content/main-content-list/state-strategies-for-awarding-cr.html>

²⁶ Queen, B., and Lewis, L. (2011). *Distance Education Courses for Public Elementary and Secondary School Students: 2009-10* (NCES 2012-008). U.S. Department of Education, National Center for Education Statistics. Washington, DC: Government Printing Office. Available online at: <http://nces.ed.gov/pubs2012/2012008.pdf>

²⁷ Watson, J., Murin, A., Vashaw, L., Gemin, B., and Rapp, C. (2012). *Keeping Pace with K-12 Online and Blended Learning: An Annual Review of Policy and Practice*. Durango, CO: Evergreen Education Group. Available online at: <http://kpk12.com/reports/>

²⁸ SETDA (2013). *Transforming Data to Information in Service of Learning*.

providing online access to data to inform instructional planning in schools²⁹ and this trend has only accelerated since that time.

K-12 education's 'shift to digital' is well underway, driven by trends that include increasing use of digital instructional materials, online assessment, online professional learning communities, online and blended learning, and the use of data to inform instructional and resource allocation decisions. While these trends may appear to be unrelated to each other, they represent nothing less than a wholesale digital transformation of our nation's education system. Taken together, we see that these trends are leading to an overwhelming reliance on broadband by students and teachers and just how critical a role universal access to high-capacity broadband plays to advancing school reform and improvement and efficient school operations. Without comprehensive and forward-looking planning and support for school infrastructure, all of this important work is at risk.

SETDA Principles for E-Rate Modernization

The context for and issues associated with E-rate modernization are complex and inter-related. As such, based on our extensive track-record on the issue of K-12 broadband infrastructure needs, SETDA proposes seven (7) guiding principles to inform Commission deliberations on the modernization of the E-rate:

- Principle #1: A Modernized E-Rate Should Be Guided by Few, Clear Performance Goals and Metrics
- Principle #2: A Modernized E-Rate Must Better Align to Education Needs and Governance Responsibilities
- Principle #3: A Modernized E-Rate Must Prioritize Equity of Access to Robust Broadband by 100% of Schools
- Principle #4: A Modernized E-Rate Must be Fiscally Responsible
- Principle #5: A Modernized E-Rate Should Incent Participant Innovation
- Principle #6: A Modernized E-Rate Should Reduce Participant Burden
- Principle #7: A Modernized E-Rate Must Provide Specific, Predictable and Sufficient Funding to Address K-12 Broadband Infrastructure Needs

In the sections below, SETDA further explicates these seven guiding principles and provides detailed comments and recommendations for E-rate modernization.

PRINCIPLE #1: A MODERNIZED E-RATE SHOULD BE GUIDED BY FEW, CLEAR STRATEGIC GOALS AND SUCCESS METRICS

SETDA believes that for any modernization of the E-rate to be successful that the program must be guided by few, clear strategic performance goals and metrics – grounded in a

²⁹ Gray, L., Thomas, N., and Lewis, L. (2010). *Educational Technology in U.S. Public Schools: Fall 2008* (NCES 2010-034).

compelling vision for a modernized E-rate – that can stand the test of time and minimize the data collection burden on program participants (*E-rate NPRM ¶¶ 14-15*). We endorse the GAO’s March 2009 characterization of successful performance measures vis-à-vis the E-rate.³⁰ Specifically, the GAO asserts that E-rate performance measures should:

- Be tied to goals and demonstrate the degree to which the desired results are achieved;
- Address important aspects of program performance; and,
- Provide useful information for decision-making.

SETDA Endorses the Commission’s Proposed E-Rate Goal Areas

SETDA endorses the three broad goal areas proposed by the Commission for the E-rate program addressing issues related to in-school access to robust broadband for teaching, learning, assessment and school operations; cost-effectiveness; and high-quality program administration (*E-rate NPRM ¶¶ 17-19, 41-42, 45-46*).

Proposed SETDA Goals for E-Rate

Consistent with our other proposed principles for E-rate modernization, SETDA believes that E-rate performance can be assessed by focusing on achieving a few, clear strategic goals:

- Average per student and educator in-school internet access speeds increase over time to meet capacity targets (*E-rate NPRM ¶¶ 20-24, 26-29*);
- Average recurring total monthly cost per MB of high-quality school internet connection capacity decreases over time (*E-rate NPRM ¶¶ 43-44*);
- The administrative and regulatory burden to program participants decreases over time (*E-rate NPRM ¶¶ 47-51*); and,
- Program participation rates increase over time (*E-rate NPRM ¶¶ 47-51*).

It is vital that the quality of broadband access is verified to be at recommended levels in all instructional spaces in schools and with the full range of devices in use. Even if schools believe that they have procured sufficient bandwidth, local network architecture, server settings, the number of wireless access points, and weak wireless signals (and/or the use of outdated wireless protocols) may affect performance and hence digital learning opportunities for students.

Analyzing measures associated with these goals by state, by school district characteristics, by school internet connection type, and by consortium participation status would produce information suitable for use for continuous improvement of the program by

³⁰ U.S. Government Accountability Office (2009, March). Long-Term Strategic Vision Would Help Ensure Targeting of E-rate Funds to Highest-Priority Uses (GAO-09-253). Washington, DC: Author. Available online at: <http://www.gao.gov/products/GAO-09-253>.

the Commission, by states and districts, by telecommunications providers, and by other program stakeholders.

SETDA Capacity Targets Should Be Adopted by the Commission

“Digital learning offers exciting new opportunities for more personalized learning and student engagement in every classroom....We must move forward quickly to supply sufficient affordable broadband access to every student both in school and at home.”

- Wisconsin State Superintendent of Schools Tony Evers³¹

In 2012, SETDA published the report, *The Broadband Imperative: Recommendations to Address K-12 Infrastructure Needs*.³² The purpose of the report was to provide an up-to-date assessment of access to broadband by students and teachers (in and out of schools); describe current trends driving the need for more broadband in teaching, learning and school operations; and offer specific recommendations for the broadband capacity needed to ensure all students have access to the tools and resources they need to be college and career ready by 2014-15 and beyond.

Based on the advice of national experts on school broadband, technology and telecommunications provider representatives, state and local education experts, and the review and analysis of existing data, research, trends, and experiences of leading states, districts and the federal government, SETDA advanced a series of recommendations. Chief among these recommendations was the following:

Recommendation 1: Move to Address K-12 Broadband Infrastructure Needs

To reach the goal of sufficient broadband access for enhanced K-12 teaching and learning and improved school operations...SETDA recommends that schools and districts meet the following *minimum* bandwidth targets between now and the 2017-18 school year:

Broadband Access for Teaching, Learning and School Operations	2014-15 School Year Target	2017-18 School Year Target
An external internet connection to the Internet Service Provider (ISP)	At least 100 Mbps per 1,000 students/staff	At least 1 Gbps per 1,000 students/staff
Internal wide area network (WAN) connections from the district to each school and among schools within the district	At least 1 Gbps per 1,000 students/staff	At least 10 Gbps per 1,000 students/staff

³¹ SETDA (2012). *Press Release: State Leaders Stress Importance of Robust Internet Access for Preparation of K-12 Students for College, Careers*. Washington, DC: SETDA. Available online at:

http://www.setda.org/c/document_library/get_file?folderId=198&name=DLFE-1521.pdf

³² SETDA (2012). *The Broadband Imperative: Recommendations to Address K-12 Education Infrastructure Needs*.

This broadband capacity recommendation has since been widely adopted by leading states (such as Louisiana and Florida), districts, and organizations, including both Smarter Balanced and PARCC assessment consortia and the non-profit Education SuperHighway.

As the basis for E-rate modernization, SETDA strongly urges the Commission to use movement toward these targets as the core metric to judge E-rate program success and to incent both schools and providers to attain (*E-rate NPRM ¶¶ 20-24, 26-29*). A clear focus on these targets as minimum capacity goals for all schools will unleash innovation, drive new state, local and private sector investments, support the next generation of school reforms, and provide the basis for program accountability.

Given that bandwidth capacity determines which online content, educational applications, and digital learning services students and educators can use effectively in the classroom, it is SETDA's core argument that it is in the national interest to modernize E-rate to ensure a baseline broadband capacity in and throughout all schools and to incent continued digital learning innovation.

PRINCIPLE #2: A MODERNIZED E-RATE MUST BETTER ALIGN TO EDUCATION NEEDS AND GOVERNANCE RESPONSIBILITIES

In the U.S., we operate a system of K-12 schools nested within districts and states. SETDA believes that a modernized E-rate should be more tightly aligned to existing state and local education authority governance and accountability structures and be designed to strengthen the capacity of the existing governance system to meet its needs and improve over time.

States Should Adopt School Broadband Connectivity Targets and Plans for Meeting Those Targets

As a matter of equity of opportunity, of economic development, and of efficiency of money spent for public education, we need a modernized E-rate with national school connectivity targets. As a condition of eligibility to receive financial support as outlined in the section below ("State, Local Capacity to Assess Periodic Progress Toward and Achieve School Broadband Goals Should be Supported by E-rate"), states should be required to either ratify the national K-12 connectivity target established by the Commission or set an alternate state-specific target based on a rigorous analysis and consideration of school connectivity needs and trends (*E-rate NPRM ¶¶ 76, 217-219*). In concert with the formal adoption of school connectivity targets, states should develop state-specific plans that address – at a minimum – the following issues: the state's rationale for its chosen connectivity targets; an assessment of the gap between current school connectivity and the state's adopted targets; how the state and its districts will coordinate meeting school broadband infrastructure needs with those of other public and private entities within the state; the state role in aggregated purchasing and consortia management; how the capacity of local school districts (including especially small and rural school districts) will be

supplemented to ensure cost-effective network design, purchasing, maintenance, and upgrades; the state's strategy to ensure that students and educators have sufficient access to the internet when they are not on campus; and, how the state will support educators and students to leverage improved internet access in and outside of school for teaching, learning, assessment and improved school operations.

State, Local Capacity to Achieve School Broadband Goals Should be Supported by E-rate

All states that establish connectivity targets and implementation plans should receive financial support via the E-rate to implement those plans and collect data to assess periodic progress. Technical assistance to school districts to be delivered via this mechanism is critically important for small and rural school districts, which lack the capacity to participate in the program and effectively design and deploy advanced broadband services to their students and teachers (*E-rate NPRM ¶¶ 198-201*). Moreover, states that establish connectivity targets and implementation plans should be allowed to pursue the further streamlining of some school district applicant procedures, as appropriate.

School Districts – Not Individual Schools – Most Appropriate E-rate Applicants

Consistent with this proposed principle, we concur with the Commission proposal regarding changing the status of individual schools as eligible applicants (*E-rate NPRM ¶¶ 126-132*). We recommend instead that schools submit applications by school district (or, more specifically, local education authority as defined by the state) and that the average discount rate for the entire school district should be applied to that application. This will serve the dual purpose of helping to simplify and reduce the burden of the current application process.

PRINCIPLE #3: A MODERNIZED E-RATE MUST PRIORITIZE EQUITY OF ACCESS TO ROBUST BROADBAND BY 100% OF SCHOOLS

Increasingly, major state-led K-12 school reform and improvement initiatives presume or require a robust broadband and technology infrastructure in order to be implemented and succeed. Moreover, access to and facility with online tools and services is increasingly a requirement for entry into the workforce or postsecondary education after high school. Many postsecondary institutions and employers, for instance, only advertise and accept applications online.

Consequently, SETDA believes that a modernized E-rate must be systematically re-structured to prioritize equity by ensuring that a baseline broadband capacity is available to and throughout all schools in the nation.

Eligible Services Should Be Focused on Technologies that Advance Broadband Deployment, Access and Use

The Commission has flagged a number of currently eligible legacy telecommunications services as potential targets to be phased out over time so as to increase the funds available to meet the most pressing broadband needs for a modernized E-rate (*E-rate NPRM ¶¶ 90-102, 105-114*). Presuming that the education needs being served by these legacy services can be met via broadband-enabled services eligible under a modernized E-rate, SETDA believes that a rational, predictable phase out would increase resources available to meet the growing broadband needs of all schools and should be pursued.

Priority Services Distinctions Should Advance Broadband Deployment, Access and Use

As noted by the Commission in the NPRM (¶143), a high-capacity broadband connection to the school doors that cannot be efficiently and effectively distributed throughout the building to students and teachers serves no one's interests. A modernized E-rate program must be structured to support the delivery of broadband to and within all school buildings. As such, SETDA supports the simplification and merging of Priority 1 and 2 services, allowing local school districts the freedom to design and deploy cost-effective, comprehensive solutions that meet student and teacher needs in line with adopted capacity targets (*E-rate NPRM ¶¶ 103-104, 143-149, 248-251*). This will serve the dual purpose of helping to reduce the burden of the current application process, as well as to encourage the development of new, innovative solutions to meet school needs.

At the same time, should a modernized E-rate incentivize long-term capital improvements and infrastructure build out to meet established capacity targets, it may be wise to consider establishing a new class of services to reflect the dramatically different nature of costs for long-term investment vs. short-term costs and/or recurring services (*E-rate NPRM ¶¶ 70-85*).

Furthermore, SETDA supports providing school districts the freedom to meet wider community and out-of-school access needs among students and educators via wireless community hotspots or Wi-Fi-enabled school bus service, if that is consistent with the adopted state plan and is determined to be in the educational needs of the district (*E-rate NPRM ¶¶ 319-323*).

Discount Eligibility Should Be Restructured to Ensure Equitable Broadband Deployment, Access and Use

Every student and educator in every school must be provided the opportunity to benefit from broadband-enabled teaching, learning, assessment and improved school operations. At the same time (and underscored in SETDA E-rate modernization principle #4 below), SETDA believes that a thoughtful combination of decreases in existing discount rates and

the institution of reasonable applicant funding caps could better target scarce federal dollars to this goal (*E-rate NPRM ¶¶ 115-125, 135-142*). This would serve the purpose of dramatically broadening program participation among schools and hence their ability to meet adopted capacity targets, while at the same time strengthening the federal-state-local partnership and shared commitment to adequate education funding.

PRINCIPLE #4: A MODERNIZED E-RATE MUST BE FISCALLY RESPONSIBLE

For a modernized E-rate to remain viable over time and in line with the nation's universal service responsibilities, it is vital that every dollar in the program is used well and consistent with state and local school reform and improvement goals (*E-rate NPRM ¶¶ 211-216*). It is for this reason that SETDA has proposed that a primary goal for a modernized E-rate should be to drive down the average recurring total monthly cost per MB of school internet connection capacity over time. Consistent with that proposed goal, a modernized E-rate must institute a number of other reforms to ensure that progress is made and maintained.

Pricing Data Must be Made Transparent and Accessible

While there are many valid reasons why cost per high-quality MB of school broadband capacity may vary from community to community and despite the fact that some financial data is currently collected via the E-rate application process, we have too little insight today into the E-rate's role in ensuring cost-efficiency of school networks. Pricing data negotiated and paid for by E-rate applicants should be made transparent and publicly accessible via an easy-to-use online portal (*E-rate NPRM ¶¶ 52, 191-197*). This transparency will serve the dual purposes of educating applicants and providers both on the varying prices currently paid by applicants, as well as facilitate the conduct of special studies and analyses by interested 3rd parties to identify best practices that can be pursued by future applicants seeking greater cost-efficiencies.

Consortium Purchasing, Bulk Buying Should be Encouraged

Bundling the demand for advanced telecommunications services and technologies will result in preferred pricing. SETDA believes that states play a key role in establishing or facilitating aggregation of demand across school districts (*E-rate NPRM ¶¶ 186-190*). Furthermore, a modernized E-rate should require applicants to consider the cost-efficiency of consortium purchasing and bulk buying prior to striking individual agreements with qualified providers.

Multiyear Contracts Should be Supported

To the extent that multiyear contracts result in more cost-effective decisions by E-rate applicants, SETDA believes that they should be supported (*E-rate NPRM ¶ 216, 239-246*).

PRINCIPLE #5: A MODERNIZED E-RATE SHOULD INCENT PARTICIPANT INNOVATION

With the adoption of capacity goals, SETDA believes that it will be important to be 'loose' on the means to achieving them by increasing freedom for participants to develop and deploy the most cost-effective approaches and technologies in line with adopted plans and priorities. To the extent possible, SETDA believes the Commission should be technology-neutral in its rulemaking, taking into consideration the rapid pace of innovation in products and services and not picking winners and losers in the marketplace by overly restrictive eligible services determinations. Moreover, applicants should be given the freedom to build and manage their own broadband infrastructure when it can be demonstrated that this is sustainable over time and the most cost-effective option (*E-rate NPRM ¶¶ 70-85*).

Annual Reports, Special Studies, Best Practices Research Should be Supported

Throughout the NPRM, the Commission asks for comment on the desirability of directing modernized E-rate funding toward the production of periodic and special reports on the performance of the program and strategies being pursued by program participants, as well as toward pilot projects of broad relevance to program stakeholders (*E-rate NPRM ¶¶ 178, 220-223*). SETDA supports these activities and believes that will lead to the continuous improvement of the program over time, including helping to identify best practices that will accelerate achievement of the proposed goals for the program.

PRINCIPLE #6: A MODERNIZED E-RATE SHOULD REDUCE PARTICIPANT BURDEN

SETDA believes that a high priority of a modernized E-rate must be to reduce the complexity of the program and the burden on program participants to understand and comply with necessary regulations (*E-rate NPRM ¶¶ 224-226*). Program complexity drives up costs, decreases participation, and reduces innovation. Several of our recommendations to this point would also serve to address this principle.

Critical to Pursue Electronic Filing of Forms and Correspondence

SETDA strongly endorses the increased automation of the electronic forms filing and correspondence to ease participant burden and to effectively target technical assistance needs, including pursuing automated data collection and entry from the most appropriate parties, including providers (*E-rate NPRM ¶¶ 227-232*). Consistent with proposed principle #1, SETDA believes that data collection burden must be minimized and tightly focused on information needed to advance E-rate priorities consistent with adopted program goals and measures.

Uncertainty of CIPA Has to Be Resolved

SETDA believes it is past due time for clarity regarding the applicability of CIPA to off-campus use of technology for teaching and learning. SETDA proposes a common sense approach to the issue: CIPA should only apply in cases where students are using school-owned devices off-campus AND/OR if students are accessing school managed networks (and only for the duration of that access). In all other cases, local community standards should prevail (*E-rate NPRM ¶¶ 86, 270-275*).

PRINCIPLE #7: A MODERNIZED E-RATE MUST PROVIDE SPECIFIC, PREDICTABLE AND SUFFICIENT FUNDING TO ADDRESS K-12 BROADBAND INFRASTRUCTURE NEEDS

SETDA believes that to meet the goals and needs expressed in our comments, a modernized E-rate will need increased funding (*E-rate NPRM ¶¶ 172-176*). For program participants, this funding must be specific, predictable and sufficient (*E-rate NPRM ¶¶ 14*). Moreover, it will be important for the Commission to consider the potential need for specific long-term capital investment support, which is likely to be necessary to ensure an abundant, affordable supply of broadband to the nation's schools over time.

CONCLUSION

“Now is the critical moment for the U.S. to prioritize the investment in digital learning. While technology is not a panacea, it transforms almost every industry it touches. A lack of technology in the classroom may create substantial long-term risks to our national competitiveness.”

- LEAD Commission³³

Given that bandwidth capacity determines which online content, educational applications, and digital learning services students and educators can use effectively in the classroom, it is SETDA's core argument that it is in the national interest to modernize E-rate to ensure a baseline broadband capacity in and throughout all schools and to incent continued digital learning innovation.

³³ LEAD Commission (2013). *Paving a Path Forward for Digital Learning in the United States*. Washington, DC: Author. Available online at: http://www.leadcommission.org/sites/default/files/LEADComm_PavingPath_Report_091013a_highres%281%29.pdf

Since the context for and issues associated with E-rate modernization are complex and inter-related, SETDA has proposed seven guiding principles to inform Commission deliberations on the modernization of the E-rate:

- Principle #1: A Modernized E-Rate Should Be Guided by Few, Clear Performance Goals and Metrics
- Principle #2: A Modernized E-Rate Must Better Align to Education Needs and Governance Responsibilities
- Principle #3: A Modernized E-Rate Must Prioritize Equity of Access to Robust Broadband by 100% of Schools
- Principle #4: A Modernized E-Rate Must be Fiscally Responsible
- Principle #5: A Modernized E-Rate Should Incent Participant Innovation
- Principle #6: A Modernized E-Rate Should Reduce Participant Burden
- Principle #7: A Modernized E-Rate Must Provide Specific, Predictable and Sufficient Funding to Address K-12 Broadband Infrastructure Needs

Taken together, these principles offer a viable framework for program modernization while retaining the unique and important roles of federal, state and local governments and the private sector.

We thank you for your leadership and vision in launching this effort to modernize the E-rate, and look forward to working with the Commission and other program stakeholders to ensure that through the power of broadband every student is afforded the opportunity for a high-quality education, prepared for life, work and citizenship in the 21st century.