

February 2014

New America | Education Policy Program
and the Open Technology Institute

Policy Brief

Connected Communities in an Age of Digital Learning

A Vision for a 21st Century
E-rate Program

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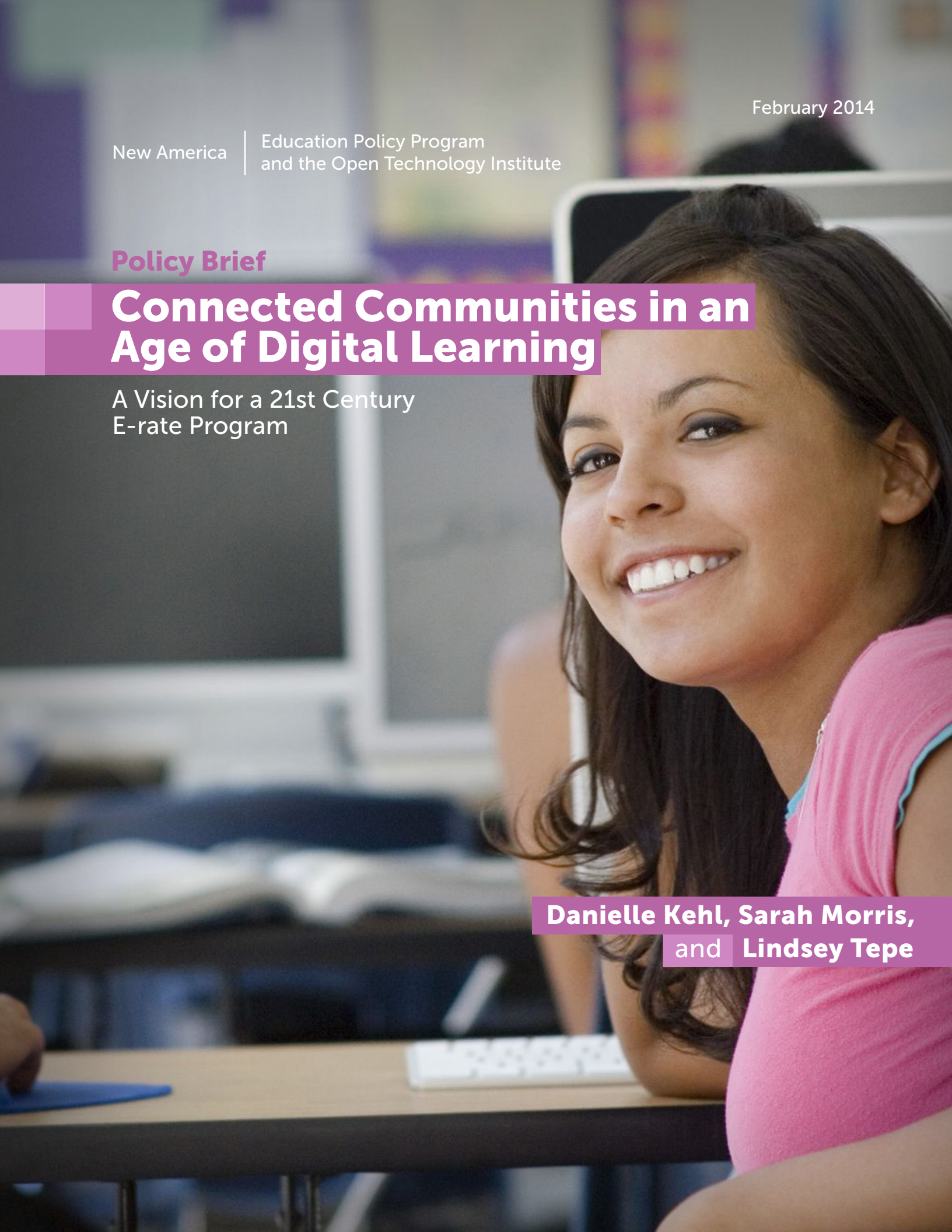


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About New America

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The New America Education Policy Program's work is made possible through generous grants from the Alliance for Early Success; the Annie E. Casey Foundation; the Bill and Melinda Gates Foundation; the Evelyn and Walter Haas, Jr. Fund; the Grable Foundation; the Foundation for Child Development; the Joyce Foundation; the Kresge Foundation; the Lumina Foundation; the Pritzker Children's Initiative; the William and Flora Hewlett Foundation; and the W. Clement and Jessie V. Stone Foundation.

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Introduction

The need to upgrade America's Internet infrastructure to support innovative digital learning tools and services has never been greater. In the past year, members of Congress, Federal Communications Commissioners, and President Obama have all recognized the issue, publicly calling for an expansion of the Federal Communication Commission's (FCC) E-rate program to provide next-generation Internet connectivity to schools and libraries across the country. West Virginia Senator Jay Rockefeller and FCC Commissioner Jessica Rosenworcel call the reforms "E-rate 2.0,"¹ while President Obama announced his support in June 2013 when he unveiled the ConnectED initiative.²

At the center of their proposals is the same ambitious goal: upgrading to a gigabit of capacity for every 1000 students at schools and libraries across the country in the next five years. Getting there requires modernizing an existing program, E-rate, which is the part of the Universal Service Fund (USF) that helps schools and libraries pay for more bandwidth.

The Universal Service Fund helps cover the cost of telephone and Internet service to rural and high-cost areas of the country, low-income families, rural health centers, and schools and libraries. As one of the four USF programs, E-rate distributes nearly \$2.5 billion a year in subsidies for telecommunications and Internet

services at schools and libraries across the country. Since 1996, E-rate dollars have helped connect over 96 percent of schools and 98 percent of libraries to the Internet, although the program has become strained in recent years. Funding requests for the 2013-2014 year added up to \$4.9 billion, approximately double the amount of available money. Meanwhile, even with available Internet access, most schools and libraries face significant capacity constraints. According to a 2010 FCC survey, nearly 80 percent of schools report that they cannot meet the needs of their students with current levels of Internet connectivity—in fact, over half of the surveyed institutions reported connection speeds that were slower than the average American home.³ The American Library Association reports similar numbers based on surveys of its members.⁴

Responding to numerous calls for reform, the FCC issued a Notice of Proposed Rulemaking (NPRM) in July 2013 to gather input on ways to modernize the E-rate program to help schools and libraries meet their 21st century needs.⁵ The NPRM laid out a series of questions about the program and various proposals for reform, on issues ranging from technology preference to the application process. Stakeholders—including education groups, library groups, business coalitions, and individual citizens—had several months to put together comments and reply comments addressing the issues that concerned them most. Nearly 1000 constituent groups weighed in on the process throughout the fall.

In early 2014, the Obama Administration reiterated its commitment to modernizing E-rate. Tom Wheeler, the new FCC Chairman, indicated in January that E-rate reform is one of his priorities for his first year.⁶ And President Obama called for immediate improvements to school and library connectivity in his State of the Union address.⁷ The FCC is now reviewing various proposals for long-term overhaul to the program and considering how to maximize funding for broadband service under the existing rules.

E-rate Reform: A Timeline

March

During a Senate Commerce Committee hearing, U.S. Senator **Jay Rockefeller** (D-WV) calls for **major expansion of E-rate**.

April

Jessica Rosenworcel, a commissioner for the Federal Communications Commission (FCC), advocates for a **modernized "E-rate 2.0"** at the Washington Education Technology Policy Summit.

June

President Obama announces his administration's **ConnectED** initiative from Mooresville Middle School in North Carolina.

July

FCC Commissioner **Ajit Pai** presents remarks at the American Enterprise Institute (AEI) on **"student-centered" E-rate reform**.

The FCC releases Notice of Proposed Rulemaking (NPRM) for E-rate program modernization.

September

Initial **Comments** are due, with over 700 comments submitted from stakeholders around the country.

October

Stakeholders and members of the public prepare **Reply Comments**, which are responses to the comments submitted the month before. The federal government shutdown forces the FCC to delay the deadline until November.

November

E-rate **Reply Comments** are due, with over 300 additional reply comments submitted.

January

President Obama reiterates **ConnectED** goals in his State of the Union address, announcing a series of **private partnerships as a "down payment"** on connecting schools.

February

FCC Chairman **Tom Wheeler** reinforces E-rate as a priority for the FCC, announcing a **\$2 billion program budget reallocation** for high-speed connectivity.



Top: FCC commissioner Jessica Rosenworcel.

Bottom: President Obama reiterated ConnectED goals in his 2014 State of the Union

2013

2014

2 A Vision for a Modernized E-rate Program

In the past two decades, the E-rate program has been able to connect the vast majority of schools and libraries, but most of these institutions lack the capacity to meet the demands of today's students and library patrons.

The constraints created by inadequate broadband infrastructure, costly and non-transparent service pricing, and finite financial resources limit these institutions' ability use new digital learning tools and to foster greater digital inclusion by serving as anchors for community connectivity.

New America has laid out a vision for E-rate reform based on the idea that the program can be updated to better support libraries and schools in their roles as hubs for connected communities.⁸ First and foremost, E-rate should encourage investment in better infrastructure that is capable of both providing robust connectivity now and scaling to meet future needs. As anchor institutions in their communities, schools and libraries should also have the flexibility to leverage this infrastructure to spread connectivity beyond their walls to the surrounding community. Supporting these digital communities will help ensure that no one—from K-12 students to non-traditional learners—is excluded from learning opportunities. Finally, the need for better data and measurement is central to these reforms so that E-rate participants, researchers, and policymakers can better understand and analyze this program going forward.

3 Building Next Generation Capacity: Why Fiber Investment Matters

A modernized E-rate needs to focus on helping schools and libraries afford high-speed connections, including placing a priority on upgrading infrastructure to support greater capacity now and in the future.

Many schools and libraries across the country rely on inadequate connections delivered over aging broadband infrastructure.⁹ The majority of schools in New York City, for example, have institutional connections ranging from 1.5 to 50 Mbps.¹⁰ With such low bandwidth, a school in Brooklyn would find it practically impossible to implement a 1-to-1 initiative (where each student is provided a device of their own for learning) that makes use of resources like educational videos; for example, the education non-profit Khan Academy recommends 1-1.5 Mbps per student device.¹¹

The smartest investment to help schools and libraries meet their growing needs is in fiber-optic technology, which is the best option to deliver gigabit speeds. Because of its nearly unlimited capacity and ability to easily scale to meet future bandwidth demands, many refer to fiber infrastructure as "future proof." Connections can be upgraded by installing new networking equipment rather than having to lay new cables. Fiber is also more resilient than other technologies, and it is less susceptible to corrosion and signal interference.¹² The FCC can help finance fiber upgrades through a one-time, dedicated upgrade fund,¹³ providing incentives for schools and libraries to spend the money and holding providers accountable for investing in upgrades on their networks.

4 Extending Connectivity Beyond School and Library Walls

Learning doesn't stop outside the school or library walls, and neither should connectivity.

Communities throughout the nation are beginning to recognize the need for coordination and planning so that they can provide robust Internet access to members of the community who do not have access at home. Schools and libraries are well

positioned to serve as anchors for community connectivity, which can lead to greater digital inclusion for students and learners of all ages, especially in the most remote and impoverished areas of the country.¹⁴

The E-rate program should maintain flexible rules so that communities can leverage school and library infrastructure to offer Internet access not just during regular operating hours, but also on weekends and in the evenings, as well as beyond their premises where it is feasible to do so.

Spotlight

The **Mooreville Graded School District** in North Carolina serves as a model for building a digital community that supports 21st century learning opportunities. The district started its digital conversion in 2007 and has grown today to an ambitious 1-to-1 initiative providing laptops for every student in grades 4 through 12. The commitment to expanding digital learning opportunities has been supported by the community at large, through the commitment to provide free Wi-Fi at the local library, in all municipal buildings, in parks throughout the district, and many businesses throughout the community. Recognizing that approximately one third of the district's students lacked Internet access at home at the beginning of the digital conversion, the local cable company, MI-Connection, initiated a program, Internet REACH, which provides free high-speed Internet service to families of students in the district who qualify for free or reduced price lunch. Importantly, Internet REACH is available to any qualifying household in MI-Connection's service area, even if they are already MI-Connection customers.

5 Collecting & Releasing Better E-rate Data

As E-rate evolves to meet today's digital learning needs, it's clear that better data is needed so that the program can be studied and evaluated more robustly.

Reforms should focus on streamlining the application process, collecting better data from applicants and service providers, and making key data available in a format that is useful for researchers and the public. Streamlining these processes can reduce the paperwork burden on E-rate applicants while improving the accuracy and usability of program data.

First, the forms that the FCC currently relies on could be significantly improved. Changes should focus on collecting more specific

pricing information directly from broadband providers that receive E-rate subsidies and should also include commonly-used identifiers for schools and libraries so that E-rate data can be integrated with other existing databases, such as the one maintained by the National Center for Education Statistics.¹⁵ More transparency is also important: information about prices and speeds could help schools and libraries understand if they are overpaying for service and increase their ability to hold Internet service providers accountable if they violate the pricing protections in the E-rate program.¹⁶ What's more, public data could add tremendous, long-term value to the research community, for example, by allowing researchers to integrate data on speeds and prices into other assessments of broadband adoption. This type of analysis would deepen our understanding of the digital divide in America and the role that libraries and schools play in closing that gap.

6 Ensuring No Learners Are Left Behind

Finally, it's important to address gaps in E-rate that may unintentionally lead to inequities in different geographical areas or between types of institutions.

The reliance on state definitions of elementary and secondary schooling for funding decisions has resulted in inconsistent access to support for many different types of learners, including Head Start, pre-kindergarten, juvenile justice, and adult education students and facilities. The complex funding system that has emerged also creates an additional administrative burden for schools, libraries, and other public institutions that provide "non-traditional" education opportunities, who have to ensure that E-rate resources are not allocated toward those "non-

traditional" learners.

Examples from early childhood education and adult education highlight the importance of a more inclusive approach for defining learning environments that are E-rate eligible. In states where pre-K is not legally defined as part of elementary schooling, districts that choose to provide pre-K can connect classrooms for grades K-5, but cannot apply E-rate funds to classrooms that serve younger students. Many adult education facilities—whether they are housed in community centers, library computing centers, or in other public buildings—are also ineligible for E-rate service, depending on the state. The E-rate program should seek to provide greater flexibility for both school and library applicants providing "non-traditional" learning opportunities.

Spotlight

Massachusetts law precludes E-rate funding from being used for students enrolled in public preschool. Boston and other cities around the state have struggled with several administrative and management complications resulting from the differentiated treatment of Head Start and pre-kindergarten classrooms in their elementary schools. In comments to the FCC, the city explained, "While inside wiring and wireless deployment are often a long-term investment, classroom assignments can change year-to-year. This year's preschool classroom could become next year's fifth grade classroom—or it could be used for educational purposes even sooner."¹⁷ These changes, which are often based on enrollment, make it more challenging for schools to determine which classrooms are eligible within a given public school. In addition to the logistical complications, the result of such policies is that some classrooms are not equipped for digital learning, limiting educational opportunities for students.

Conclusion

E-rate modernization efforts should ensure that all students and families have access to educational resources that enable them to develop 21st century skills.

Strong, equitable Internet infrastructure in our schools and libraries must be an integral part of the continuing push for equity, excellence and innovation in our educational system

as a whole. By investing in better, future-proof technology, promoting flexibility for innovations within community anchor institutions, and ensuring equal treatment toward all of the participating institutions, a reformed E-rate program can grow, strengthen, and sustain connected communities.

Notes

This brief is a compilation of a blog series featured on New America's Open Technology Institute blog, Ed Central, and Public Comments submitted by New America's Education Policy Program and Open Technology Institute to the Federal Communications Commission during 2013 rulemaking. It includes additional analysis and recommendations by the authors. See: Danielle Kehl and Sarah Morris. E-rate Modernization: Recommendations from OTI and the Education Policy Program. Open Technology Institute blog, September 20, 2013. http://oti.newamerica.net/blogposts/2013/e_rate_modernization_comments_from_oti_and_the_education_policy_program-92630; Lindsey Tepe. To Pave the Way for Education Innovation, Schools and Libraries Need a "High Fiber Diet." Ed Central, November 13, 2013. <http://www.edcentral.org/pave-way-education-innovation-schools-libraries-need-high-fiber-diet/>; Lindsey Tepe. Mooresville, NC: ConnectED Schools Supported by Connected Communities. Ed Central, February 12, 2014. <http://www.edcentral.org/mooresville-nc-connected-schools-supported-connected-communities/>; Daniel Kehl. Show us the Data: Better Information Collection for a Better E-rate. Ed Central, February 24, 2014. http://www.edcentral.org/show_us_the_e-rate_data/; Comments of New America Foundation's Open Technology Institute and Education Policy Program, WC Docket No. 13-184 (September 16, 2013). Retrieved from: http://oti.newamerica.net/sites/newamerica.net/files/profiles/attachments/NAF_E-Rate_Comments.pdf; Reply Comments of New America Foundation's Open Technology Institute and Education Policy Program, WC Docket No. 13-184 (November 8, 2013). Retrieved from: http://oti.newamerica.net/sites/newamerica.net/files/profiles/attachments/NAF_Erate_Reply_Comments_FINAL.pdf.

- 1 Office of U.S. Congressman Jay Rockefeller. Rockefeller Calls for Major Expansion of E-rate Program. March 23, 2013. Retrieved from: <http://www.rockefeller.senate.gov/public/index.cfm/press-releases?ID=8e1e04d2-d4f0-4ae0-aab8-736a2f566ea9>; Federal Communications Commission. Summary of Remarks of Commissioner Jessica Rosenworcel, Education Technology Policy Summit, April 11, 2013. Retrieved from: <http://www.fcc.gov/article/doc-320122a2>.
- 2 White House: Office of the Press Secretary. President Obama Unveils ConnectED Initiative to Bring America's Students into Digital Age. June 6, 2013. Retrieved from: <http://www.whitehouse.gov/the-press-office/2013/06/06/president-obama-unveils-connected-initiative-bring-america-s-students-di>
- 3 Stephanie Banchemo. Slow Broadband Internet Speeds Vex Nation's Schools. Wall Street Journal January 6, 2014. Retrieved from: <http://online.wsj.com/news/articles/SB10001424052702303640604579300350203453792>; Federal Communications Commission Wireless Competition Bureau. 2010 E-rate Program and Broadband Usage Survey: Report. Retrieved from: http://transition.fcc.gov/010511_Eratereport.pdf.
- 4 American Library Association. ALA calls for leap forward in E-rate goals; streamlined program. September 18, 2013. Retrieved from: <http://www.ala.org/news/press-releases/2013/09/ala-calls-leap-forward-e-rate-goals-streamlined-program>.
- 5 Modernizing the E-rate Program for Schools and Libraries, WC Docket No. 13-184, Notice of Proposed Rulemaking, FCC 13-100, 1 (2013) (E-rate NPRM). Retrieved from: http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-13-100A1.pdf.
- 6 FCC Chairman Tom Wheeler. Helping American Students Compete in a Digital World. January 24, 2014. Retrieved from: <https://www.fcc.gov/blog/helping-american-students-compete-digital-world>
- 7 President Barack Obama's State of the Union Address. January 28, 2014. Retrieved from: <http://www.whitehouse.gov/the-press-office/2014/01/28/president-barack-obamas-state-union-address>.
- 8 Comments of New America Foundation's Open Technology Institute and Education Policy Program, WC Docket No. 13-184 (September 16, 2013). Retrieved from: http://oti.newamerica.net/sites/newamerica.net/files/profiles/attachments/NAF_E-Rate_Comments.pdf; Reply Comments of New America Foundation's Open Technology Institute and Education Policy Program, WC Docket No. 13-184 (November 8, 2013). Retrieved from: http://oti.newamerica.net/sites/newamerica.net/files/profiles/attachments/NAF_Erate_Reply_Comments_FINAL.pdf.
- 9 2010 E-rate Program and Broadband Usage Survey: Report, Federal Communications Commission Wireless Competition Bureau. Retrieved from: http://transition.fcc.gov/010511_Eratereport.pdf.
- 10 Office of the Manhattan Borough President. New York City's Digital Deficit: An Investigation of Slow Internet Speeds in Public Schools and Libraries. August 2013. Retrieved from: <http://www.scribd.com/doc/161686382/Scott-Stringer-Digital-Deficit-Report>.
- 11 Khan Academy. Technology Set-up and Maintenance Requirements. Retrieved from: <https://www.khanacademy.org/coach-res/become-a-coach/coach-set-up/a/technology-set-up-and-maintenance-for-classroom-use>
- 12 Brian Dosono. Fiber to the Classroom. New America's Open Technology Institute. September 27, 2013. Retrieved from: http://oti.newamerica.net/blogposts/2013/fiber_to_the_classroom-93221
- 13 Education Superhighway. E-rate reform can fund America's K12 Internet upgrade. Retrieved from: <http://www.educationsuperhighway.org/e-rate-20.html>.
- 14 Institute of Museum and Library Services, University of Washington Technology & Social Change Group, International City/County Management Association. Building Digital Communities: A Framework for Action. 2012. Retrieved from: http://www.imls.gov/assets/1/AssetManager/BuildingDigitalCommunities_Framework.pdf
- 15 The National Center for Education Statistics maintains the Elementary/Secondary Information System (ELSI), accessible from: <http://nces.ed.gov/ccd/elsi/>
- 16 Danielle Kehl. Show Us the Data: Better Information Collection for a Better E-rate. New America Ed Central. February 24, 2014. Retrieved from: http://www.edcentral.org/show_us_the_e-rate_data/.
- 17 Comments of the City of Boston, Massachusetts, WC Docket No. 13-184 (September 16, 2013) at 7-9. Retrieved from: <http://apps.fcc.gov/ecfs/document/view?id=7520943957>.