CTEDTECH
Connecticut Commission for Educational Technology

Annual Report of the Commission for Educational Technology

Calendar Year 2016

Submitted in Accordance with CGS Sec. 4d-80(c)(8)

Hartford, Connecticut
December 29, 2016

Contents

Background

The Commission for Educational Technology (CET) was established in 2000 by Public Act 00-187 and includes the following members:

Name and Position	Representing or Appointed By
Mark Raymond, CIO, Chairman	Department of Administrative Services (DAS)
Catherine Smith, Commissioner	Department of Economic and Community Development (DECD)
Michael Mundrane, CIO	University of Connecticut (UConn)
Ken Wiggin, State Librarian	Connecticut State Library (CSL)
Isabelina Rodriguez, Interim Chief Academic Officer	Connecticut State Department of Education (CSDE)
Scott Zak, Senior Director of Learning Technologies	CT Board of Regents for Higher Education
John Vittner, Director of IT Policy	Office of Policy and Management (OPM)
Bill Vallee, State Broadband Policy and Program Coordinator	Office of Consumer Counsel
Jennifer Widness, President	CT Conference of Independent Colleges
Nick Caruso, Senior Staff Associate	CT Association of Boards of Education
Scott Shanley, General Manager, Town of Manchester	CT Conference of Municipalities
John Elsesser, Town Manager, Town of Coventry	CT Council of Small Towns
Colleen Bailie, Director, West Haven Public Library	CT Library Association
Bart Stanco, Vice President, Gartner	Governor's Office
Russell Feinmark, CT General Assembly	Speaker of the House
Rich Mavrogeanes, President, Discover Video	President Pro Tem of the Senate
Lisa Pellegrini, First Selectman, Town of Somers	Minority Leader of the Senate
Jeffrey Kitching, Executive Director, EdAdvance	Governor's Office
Tom Dillon, Founder, Flagship Networks	Minority Leader of the House

CGS Section 4d-80 lists six statewide technology goals:

1) Connecting all institutions of higher education, libraries, public elementary and secondary schools, regional educational service centers, and other parties through a state-wide, high speed, flexible network that will allow for video, voice, and data transmission;

2) Wiring all school classrooms and connecting them to the Internet and to the state-wide, high-speed network through wired, wireless, and any other digital transmission technology providing high-speed connectivity;

3) Providing access for all public schools, public libraries, and libraries at institutions of higher education to a core set of online, full-text resources and the ability to purchase other collections collaboratively to maximize buying power;

4) Ensuring, in cooperation with the State Board of Education, competency in computing skills by the sixth grade for all students;

5) Ensuring competency in specific computing skills and the integration of technology into the curriculum for all public school teachers; and

6) Ensuring that institutions of higher education offer a wide range of course and degree programs via the Internet and through other synchronous and asynchronous methods

The Commission is required to report annually on its activities and progress made in the attainment of the state-wide technology goals and to provide recommendations to the joint standing committee of the General Assembly having cognizance of matters relating to education, appropriations, and the budget of state agencies; the State Board of Education; and the Board of Governors of Higher Education.

Meetings

The Commission and its Advisory Councils met on the following dates during the 2016 calendar year:

Commission Meetings
- Monday, March 7
- Monday, June 13
- Monday, September 12
- Monday, December 5

Advisory Council Meetings
Data and Privacy Advisory Council
- Thursday, May 19
- Monday, August 29
- Monday, November 21

Digital Learning Advisory Council
- Monday, May 16
- Thursday, August 25
- Wednesday, November 30

Infrastructure Advisory Council
- Friday, May 20
- Friday, September 2
- Wednesday, November 30

Practices Advisory Council

- Friday, May 27
- Thursday, August 11
- Monday, November 28

Detailed minutes of each of these meetings are available from the Meetings page at www.ct.gov/CTEdTech.

Commission Leadership

Mark Raymond, the Chief Information Officer for the state within the Department of Administrative Services, continued serving as Chair of the Commission by the appointment of Governor Malloy. In December 2015, the Commission hired an Executive Director, Douglas Casey, who formerly served as Director of Technology for the Capitol Region Education Council (CREC) in Hartford. The hire represents a key initiative by the Commission Chair and members to fulfill the promise of the Commission's duties and best serve the interests of learners and educational institutions in Connecticut. The Executive Director is responsible for the day-to-day activities of the Commission as well as other activities listed on the Connecticut General Assembly Web site, referenced under Public Act 00-187, and on the Commission Web site in the Bylaws section.

Soon after joining the Commission, Mr. Casey traveled across the state to meet with Commission members and other key educational stakeholders to enlist their ideas on the CET's priorities and areas of opportunity. He and Chair Raymond also met with senior education leaders in the state to raise awareness of the Commission's charge and to help ensure that organizations and agencies with authority to appoint Commission members select individuals with an active interest in educational technology and a passion to represent their constituents.

During this time, Mr. Casey also delved into the statutory requirements of the Commission as a guide for future activities. Finally, he began the process of informing the Commission's activities by conducting extensive research on national and international best practices in educational technology. Out of these efforts, he proposed a new framework for describing and organizing the Commission's work across four key focus areas:
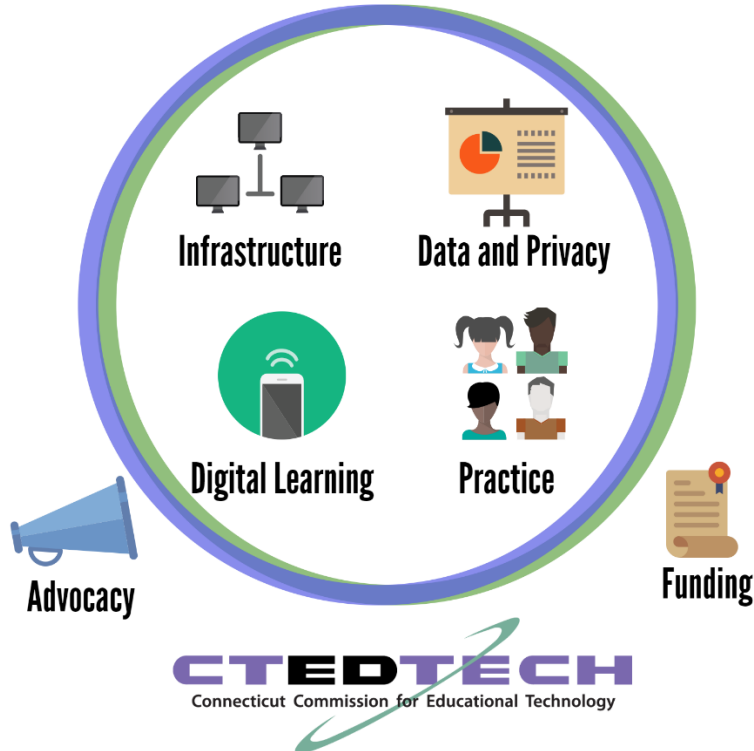
A brief set of goals around each focus area follows:

- Data and Privacy: Ensure the security and privacy of student and educator data. Support all aspects of student assessment in core academic and technology proficiencies.
- Digital Learning: Provide best practice and cost-savings models of digital learning environments, including open educational resources, learning management systems, and other video and digital learning tools.
- Infrastructure: Help ensure broadband access for schools and libraries (district, WAN, LAN, and wireless). Address issues of digital equity, with the goal of providing every learner with access to a modern computing device (personal computer or tablet) at school and at home.
- Practices: Support the creation of digital learning pathways for students, teachers, librarians, and families. Provide technology professionals with best practices in policy, governance, and operational efficiencies.
- Advocacy: Serve as the state's leader in educational technology policy and practice. Create and support pathways of communication among members and all educational technology stakeholders.
- Funding: Identify and help secure funding resources to support all aspects of school and library technology. Pursue cost-saving opportunities statewide and for individual towns, schools, and libraries.

During the March Commission meeting, Mr. Casey shared these focus areas with the membership and received support for proposing and directing initiatives under this framework. He also received support to reconvene Commission Advisory Councils, as was past practice, aligned with these new focus areas. He invited members to suggest

appointments to these Advisory Councils and recruited from his own professional network. Four members of the Commission stepped forward to chair the Advisory Councils and assisted with recruitment and meeting logistics. Following formal invitations, the Advisory Councils met for the first time in May, with membership as follows:

Data and Privacy Advisory Council
- Jeffrey Kitching (Chair) — Executive Director, EdAdvance
- Brian Czapla — Director of Educational Technology, Glastonbury Public Schools
- Robert Jasek — Chief Information Security Officer, Trinity College
- Brian Kelly — Chief Information Security Officer, Quinnipiac University
- Scott Matchett — Director of Technical Operations & Services, South Windsor Public Schools
- Stephen Nelson — Chief Information Officer, Interim, Eastern Connecticut State University
- Jason Pufahl — Chief Information Security Officer, University of Connecticut
- Bethany Silver — Director of Assessment, Evaluation, and Research, Bloomfield Public Schools
- Michael Swaine — Northeast Regional Manager, Gaggle

Digital Learning Advisory Council
- Scott Zak (Chair) — Senior Director of Learning Technologies, CT State Colleges and Universities
- Katie Bauer — Director of Library Research Services & Collections, Trinity College
- Kevin Corcoran — Executive Director, Connecticut Distance Learning Consortium
- Larry Covino — Director, Bristol Adult Education
- Sarah Edson — Director of Technology, Ethel Walker School
- John Elsesser — Town Manager, Town of Coventry
- Barbara Johnson — Library Media Specialist, Colchester Public Schools
- Karen Kaplan — Director of Technology and Communications, Hamden Public Schools
- Clint Kennedy — Supervisor of Innovation, Personalized Learning and Magnet Program, New London Public Schools
- Dawn Lavalle — Director of the Division of Library Development, Connecticut State Library System
- Laura McCaffrey — School Support and Academic Services, Archdiocese of Hartford
- Karen Skudlarek — Educational Technologist, University of Connecticut
- Jim Spafford — Coordinator of Business Services and Partnerships, Manchester Adult Education
- Jen Widness — President, CT Conference of Independent Colleges

Infrastructure Advisory Council
- Tom Dillon (Chair) — Independent, Former Partner with Flagship Networks
- Colleen Bailie — Library Director, West Haven Public Library
- Joe Campbell — Educational Technology Consultant, CT Technical High School System
- George Claffey — Chief Information Officer, Western Connecticut State University
- Robert DeVito — Technology Director, University of Hartford

- Aaron Herold — Director of Technology, New Fairfield Public Schools
- Fred Kass — Director of Networking & Infrastructure Services, Trinity College
- Kerri Kearney — Supervisor of Instructional Technology, Manchester Public Schools
- Michael Mundrane — Vice Provost and CIO, University of Connecticut
- Susan Shellard — Chief Administrative Officer, Department of Economic and Community Development
- Sabina Sitaru — Chief Innovation Officer, Metro Hartford Information Systems
- Bill Vallee — CT Broadband Policy and Programs Coordinator, CT Office of Consumer Counsel
- Rick Widlansky — System Manager, Libraries Online (LION)
- Rob Wilson — Director of Technology and Information Services, Somers Public Schools

Practices Advisory Council
- Nick Caruso (Chair) — Senior Staff Associate for Field Service, CABE
- Jonathan Costa — Director, School and Program Services, EdAdvance
- Andy DePalma — Director of Technology, EASTCONN
- Josh Elliott — Director of Educational Technology Graduate School of Education and Allied Professions, Fairfield University
- Jason Jones — Director of Educational Technology, Trinity College
- Jae-Eun Joo — Director of Neag Online Programs, University of Connecticut - Neag School of Education
- Marijke Kehrhahn — Head of School, Independent Day School
- Shannon Marimón — Division Director - Educator Effectiveness and Professional Learning, CT State Department of Education (SDE)
- Greg Mcverry — Professor, Southern Connecticut State University
- Josh Smith — Superintendent, New Milford Public Schools
- Shelly Stedman — President, CASL
- Chinma Uche — Computer Science Teacher, CREC Academy of Aerospace and Engineering

Commission Initiatives

With a new framework for activities, an engaged Commission membership, and newly formed Advisory Councils, work began in early 2016 across a number of initiatives, described in the following sections.

Digital Equity

The promise of technology to support innovative teaching and learning approaches depends on access for every learner. While 70 percent of teachers nationally assign homework that requires access to online tools and resources, more than 8 percent of Connecticut's residents 18 and younger do not have a broadband connection at home (2015 U.S. Census data). Thanks to efforts such as those of the Connecticut Education Network (CEN) to connect every school and library in the state, the "digital divide" is shrinking at the school level, but gaps still exist in access to broadband and devices for students outside the classroom.

Commission and Advisory Council members have engaged in the design phases of a multi-year strategic initiative to connect all learners, regardless of location. Recognizing the importance of first quantifying the problem, the Commission has engaged in two separate efforts. First, Commission member Bill Vallee of the State Broadband Office has engaged researchers at the Connecticut Economic Resource Center (CERC) to design a phone survey that will provide sample data pointing to geographic, socioeconomic, and mindset factors associated with lack of broadband access to homes with school-aged children across Connecticut. On a related front, the Infrastructure Advisory Council members have begun designing a survey instrument and communication materials for distribution at community-based anchor institutions, including schools and libraries, to gather broadband access data.

Accurate sample data pointing to the likely access levels of broadband to the full diversity of Connecticut households will help the Commission to address the "homework gap." While the CET cannot provide access to every needy household, our efforts can promote existing programs that help families get online. For example, recent changes to the federal Lifeline program provide funding to offset the cost of Internet access. On the supply side, initiatives such as Comcast's "Internet Essentials" program offer low-cost (e.g., $9.99 per month) broadband to homes with children qualifying for free and reduced-cost lunch. Commission efforts to promote such programs and other solutions to close the homework gap — through presentations, the CET Web site, and social media — will continue.

Open Education Resources

A number of factors point to the need to support the creation, sharing, and use of open education resources (OER) across Connecticut schools, libraries, and colleges. The adoption of free resources such as texts, videos, lesson plans, assessments, and other digital learning elements can help individual students and schools save materials costs, provide more current and culturally relevant materials to educators, and allow for the curation of class and course content tailored to the specific needs of learners.

The Commission looks to widen access to OER materials, platforms, and curation skills among educators. Discussions within the Digital Learning and the Practices Advisory Councils, between the Executive Director and national OER leaders, and from a special CET-hosted meeting of state OER experts (see notes from October 3 meeting) have led to a set of likely initiatives:

o Go Open Initiative: Adopt the U.S. Department of Education's Go Open framework, which establishes standards and best practices for adopting OER on a district and state level. Becoming a Go Open state would allow Connecticut to tap into the experience and documented best practices of the other 19 states that have taken the Go Open pledge already. Moving forward with this initiative would require us to develop a statewide technology plan that includes OER, develop a statewide repository of OER resources, participate in communities of practice through the Go Open network, and create a Web page documenting our state's commitment to OER. Joseph South, head of the Educational Technology office of the U.S. Department of Education (DoE), supports these efforts and noted that no other state

has taken the approach that the CET suggests of aligning OER initiatives across K – 12 schools, libraries, and higher education institutions.

- o Conference: Whether as part of an existing conference, such as the CEN annual conference, or a standalone event, bring together OER proponents to learn from each other across a variety of topics. Sessions could address issues such as repository options and features, training for staff, standards, and funding opportunities. The DoE would provide resources to support such an event in the form of staff representation and planning time.
- o Presentation to the General Assembly: In close partnership with members of the existing Open Textbook Task Force, meet with legislators to raise awareness of the cost, quality, and collaboration benefits of OER usage.
- o Grant Opportunities: Pursue grant funding, which may help to launch and sustain OER efforts in the state. Mr. Casey has already partnered with Partner in Publishing, a Glastonbury-based education consultancy, to support a grant-funded OER pilot enlisting professors from Connecticut's public colleges and universities.

Student Technology Proficiency Standards

The current Computer Technology Competency Standards for Students posted on the CET Web site do not reflect the skills that learners need to help ensure college and career readiness. In an effort to modernize these standards, the Practices Advisory Council reviewed and recommended the adoption of the International Society for Technology in Education (ISTE) Standards for Students, released in June of this year. This recommendation would allow the Commission to provide districts with useful, relevant standards to inform every aspect of learning. Groups that would benefit from published standards include K – 12 classroom teachers as well as library media specialists (LMS). (Several LMS professional organizations within the state have approached the Executive Director looking for assistance in adopting the ISTE standards.) The Practices Advisory Council members also recommended partnering with the Connecticut State Department of Education (SDE) to update the teacher Evidence Guides to reflect the ISTE standards. Doing so would embed them into teacher instructional best practices, increasing the likelihood of their adoption and reducing the number of standard sets that educators need to follow.

The Commission moved unanimously to endorse the ISTE standards at its September meeting. The Executive Director has worked closely with the ISTE standards team on communicating this endorsement, and Connecticut stands poised as the first state to adopt the ISTE Student Standards. The endorsement must now move through review and approval with the Connecticut Board of Education and already has strong support from the Commission's SDE representative, Interim Chief Academic Officer Dr. Isabelina Rodriguez.

Mastery-Based Learning

Engaging learners through mastery-based learning holds the potential to reduce the number of students who do not master the subject material and skills associated with their respective grade level. Mastery-based learning affords students multiple opportunities to demonstrate understanding across different modalities (e.g., writing, presenting, video, etc.) and at a personalized pace.

During the summer of 2016, the Executive Director pursued two mastery-based learning grants on behalf of the Commission and partner organizations. One came from the Nellie Mae Foundation, a regional philanthropic organization with past investments in organizations such as the Connecticut Association of Public School Superintendents (CAPSS) and EdAdvance's Center for 21st-Century Skills in Litchfield. The work would have established and built competency-based learning models in a dozen school districts statewide. The proposal team included CAPSS and the Commission as co-leads, with the Regional Education Service Centers (RESCs) as partners providing the much-needed training and support resources. Unfortunately, near the submission deadline members of the RESC team indicated they did not have the capacity to develop their portions of the proposal and backed out of the initiative. As the best-resourced K – 12 professional development team in our state, the RESCs proved critical to the proposal's success, and so without them the team could not complete the application so close to the submission deadline.

Despite that setback, the Commission did secure funding through a separate proposal to the Hume Foundation based in San Francisco. This opportunity came about through Mr. Casey's work with Lisa Duty, founder of Innovation Partners, whom the Hume Foundation contacted with interest in developing a mastery-based education model at the state level. Mr. Casey and Ms. Duty enlisted CAPSS, the state leader in mastery-based learning, to participate in the proposal-writing process. In a letter from November 9, Hume Foundation President William "Jerry" Hume confirmed that his organization would provide $50,000 in services through Innovation Partners to research the barriers to competency-based learning in Connecticut and develop a model for expanding this approach to instruction across our state's schools. Planning among Innovation Partners, the Commission, and CAPSS will begin early in 2017.

Computer Science Education

Providing equal opportunities to learn coding and other computer science (CS) skills has become a priority in our state and nationwide. According to the Bureau of Labor Statistics and other sources, Connecticut has more than 6,000 open jobs requiring CS skills. Access to CS learning opportunities appears unequal based on gender and demographic group, however. Of the 939 high school students in Connecticut who took the Advanced Placement (AP) Computer Science exam in 2015, only 216 were female, 76 were Hispanic or Latino, 31 were Black, and none were Native American, Alaska Native, Native Hawaiian, or Pacific Islander (2015 College Board data).

Members of the Practices and Digital Learning Advisory Councils have expressed a desire to increase access to CS education, through formal courses such as the AP high school class as well as through CS in other subjects (e.g., leveraging data analytics to teach demographics in a history class). The broader Commission shares this interest, and discussions are underway to plan a summit hosted by the SDE and Department of Economic and Community Development (DECD) to draft a strategic plan around CS education. As a member of the SDE Computer Science Advisory Group, Mr. Casey is involved in this planning and has spoken with DECD to offer support. Dr. Rodriguez encouraged Commission participation in this area as the SDE looks to adopt a CS curriculum framework and develop training for teachers.

Student Data Privacy

During the spring legislative session, the General Assembly passed Public Act 16-189, An Act concerning Student Data Privacy, a law that has had a significant impact on school district leaders. Authors of the Act rightfully intended it to offer better protections of student data, records, and content hosted by third parties ("operators"), though the burden on districts to review the terms of educational technology products against the new law's requirements for privacy, notifications, and transparency remains significant.

To assist districts in understanding the implications of PA 16-189, following best practices in protecting student data, and maintaining compliance with the law, Mr. Casey engaged in the following activities:

- Hosted a statewide phone conference with Shipman & Goodwin on June 27 to provide an overview of the law and steps districts should take to prepare for compliance
- With input from members of the Data and Privacy Advisory Council, wrote the Data Privacy Toolkit (bit.ly/189Toolkit), which includes free resources on compliance, training, and exemplar security programs from districts statewide
- Assisted in the planning of a student data privacy summit September 8 hosted by the State Board of Education; delivered the presentation "Operationalizing PA 16-189" to more than 100 superintendents, business managers, and technology directors
- Facilitated discussions among organizations such as CAPSS, the Connecticut Association of Boards of Education (CABE), and Connecticut Education Technology Leaders (CTETL) to garner input on the law
- Based on feedback from educational leaders, shared suggestions for revising the law with members of the General Assembly, who have since submitted bills reflecting these changes
- Engaged with The Department of Administrative Services (DAS) procurement team, members of the RESCs, and educational technology companies to develop revised data and privacy agreements of operators whose products contain highly sensitive student data and that many Connecticut districts use
- Engaged with the DAS Bureau of Enterprise Systems and Technology (DAS/BEST) team to design a free Web portal for school leaders to view the compliance status of educational technology products in use in Connecticut
- Negotiated discounted rates for school security compliance tools provided through Education Framework, a consultancy based in Oregon
- Initiated discussions with members of Senator Blumenthal's office and the SDE around the Senator's national student data privacy legislation (SAFE KIDS Act)

Educational Technology Innovation Cluster

The Commission took steps to benefit Connecticut schools, educational technology companies, and researchers this year through initial plans to develop an "Innovation Cluster." This collaborative enlists educational stakeholders within a geographic concentration to create better learning outcomes for students. Goals of the initiative include increased student engagement and achievement, the creation of educational technology products tailored to the needs of our state's schools, data that learning

scientists can leverage to support research, and the attraction of companies and high-skilled technology workers to our state.

While this initiative remains in the planning phase, the Executive Director has engaged with senior leaders in Connecticut Innovations as a potential investor, school district leaders looking to leverage and influence the development of Connecticut-based educational technology products, researchers from our colleges and universities, and private investors to plan possible programs and activities. These include pitch competitions, housing educational technology teams in partner schools as incubator space for rapid product development and iteration, and a virtual marketplace to promote effective products developed within Connecticut.

To learn more about how other states and regions have developed innovation clusters, Mr. Casey traveled to the Northeast EdClusters event in Providence on September 22 and has gathered input directly from leaders such as LearnLaunch (Boston) and Leap Innovations (Chicago). To establish its presence regionally and gain insights on developing an innovation cluster, the Commission will co-sponsor and send Mr. Casey to represent the membership at the EdSurge Tri-State Tech for Schools Superintendents Summit on March 21, 2017 (https://tristate2017.eventbrite.com).

Statutory Review

During the spring of this year, the Chair and Executive Director reviewed the Commission's statute closely to ensure (A) that the activities of the Commission support its original charge and (B) to determine the need for any possible changes to the statute. Mr. Casey shared this work with the Commission during the June meeting, and the members agreed to review the statute prior to the September meeting to assess the need for changes. At the fall meeting, the Commission agreed that a subset of members would meet to review the statute in detail and make recommendations to the full membership on changes to the law that governs the CET.

On November 8, the Commission Chair, Executive Director, Colleen Bailie, Nick Caruso, and Bill Vallee convened to discuss changes to the statute. While some participants suggested that we consider changes to the membership of the Commission, which the statute determines, the group concluded that the existing members should be able to serve the diversity of constituents they represent. The group also considered more strategic revisions to reflect the changes in educational technology since the statute's original passage in 2000. However, developing the Commission's multi-year strategic plan seemed a necessary prerequisite to revising the statute. Based on the scope of that plan, changes to the law that governs the CET may make sense to support the Commission's work and strengthen alliances with other educational stakeholders. The group and greater membership therefore moved at the December Commission meeting to hold off on any suggested statutory changes until the 2018 legislative session, at the earliest.

Strategic Planning

The 2016 calendar year saw much activity around defining the Commission's work through a modernized framework of focus areas, recruitment of subject-matter experts into Advisory Councils, and initiatives that support a diversity of educational technology concerns. To

share these activities and long-term vision with the state's educational leaders and to ensure alignment with their priorities, the Commission held a planning retreat on December 21. That meeting, which included Governor Malloy, Education Commissioner Wentzell, and more than a dozen other senior leaders of schools, libraries, and higher education, helped to raise awareness of the Commission's charge and activities and to confirm the direction of future initiatives.

With these strong alliances, an engaged membership, the insights of its Advisory Councils, and the dedicated efforts of a new Executive Director, the Commission will develop and maintain a long-range plan beginning in 2017 and make related recommendations for the coordination of educational technology work statewide.

Communications and Outreach

During the 2016 calendar year, the Executive Director delivered a number of presentations to raise awareness of the Commission's purpose and activities and to provide insights on educational technology issues affecting the CET's constituents. Mr. Casey also engaged directly with state and national educational technology organizations to support the overall educational technology community, align resources to support common causes, and to forge relationships that will benefit Connecticut's educators and learners. The following sections provide highlights of these communication and outreach efforts:

Presentations

- Future of Educational Technology: Talk delivered April 4 as part of a summit on regionalization hosted by CREC
- Commission Overview and Opportunities: Presentations from April through October at regional education service centers across the state, including Area Cooperative Educational Services (ACES) in Hamden, Cooperative Educational Services (CES) in Trumbull, EdAdvance in Litchfield, and LEARN in Old Lyme
- Student Data Privacy
  - o Hosted a statewide conference call (live and as a digital archive to visitors of the CET Web site) June 27 in partnership with the Shipman & Goodwin school law team for K – 12 leaders on the requirements and recommended best practices to comply with Public Act 189
  - o Provided one of three keynote presentations, "Operationalizing PA 16-89," at the September 8 Connecticut Data Privacy Forum
  - o Shared best practices to LEARN region superintendents November 2
  - o Served on panel discussion with legislators, legal experts, and school leaders at the CTETL summit on student data privacy December 1
- Broadband Access: Represented the Commission and the Connecticut Education Network at the national State Educational Technology Directors Association (SETDA) annual meeting's roundtable discussion October 27 on equitable access for learners
- Connecticut Educators Computer Association (CECA)
  - o Strategic Planning: Accepted invitation to join the board of CECA, the state chapter of ISTE, and facilitated the group's leadership retreat on August 8
  - o Annual Conference: Delivered opening remarks to 600+ attendees, presented a breakout session on statewide technology goals, and participated on a school library panel during the October 25 conference

- Future of Libraries: Presented the morning keynote address, "Engaging All Learners through Relevance, Relationships, and Innovation," at the Association of Connecticut Library Boards annual meeting November 4

State and National Organizations

- SETDA: Mr. Casey represents our state in this organization, comprised of state-level educational technology directors, and serves on its State Action Committee. Through SETDA, he has gained insight into national best practices and resources behind OER, data privacy, digital equity, and other initiatives. SETDA provides a vibrant network of peers as well as strong research and advocacy capabilities that can positively impact programs such as eRate, which benefit schools and libraries.
- ISTE: The Executive Director has worked closely with the ISTE standards team to promote the Commission's work around student technology proficiencies and will continue to leverage this group as a means of promoting progress in Connecticut and to gain insights on national best practices in educational technology.
- CECA: As mentioned earlier, Mr. Casey has joined CECA's board and facilitated its strategic planning process for 2016 – 2017. This professional organization represents the interest of thousands of K – 12 technology specialists and teachers statewide and will serve as a strong bridge to support and influence the work of the Commission.
- CTETL: This group serves as the state chapter of the national organization for school technology directors, the Consortium for School Networking (CoSN). Mr. Casey has accepted an invitation to serve on CTETL's board and helped the organization to launch this past summer. The CTETL leaders and membership will provide another strong channel for feedback and outreach to support the work of the Commission and the CEN.

Media and Publications

- Quilt Annual Report: The 2015 annual report of The Quilt, the national professional group for operators of research and education networks, featured an article about the CEN and the Commission's support of educational technology priorities in our state.
- Data Privacy Toolkit: With input from the Data & Privacy Advisory Council members, the Executive Director wrote and posted this guide to assist school districts in complying with the state's new student data privacy law. District leaders have expressed appreciation for the guide, one of the top downloads from the Commission's Web site.
- EdScoop Interview: At the fall SETDA conference, EdScoop, a national news site covering educational issues, interviewed Mr. Casey. He shared updates on our state's educational technology initiatives, including CEN's cost efficiencies and DDoS services, student data privacy laws, and digital equity efforts.
- Twitter Account: Early in 2016, Mr. Casey created the Commission's Twitter account, @CTEdTech, as a means of communicating important research, policy, and funding updates to its more than 100 followers.
- Listserv: Also in the winter of 2016, the Executive Director created a statewide listserv that now reaches nearly 200 school and library technology directors statewide. Members can post questions and updates and conduct threaded discussions that allow them to share insights and best practices.

- [Commission Web Site](#): Mr. Casey has initiated an update to the CET Web site supported by the new statewide content-management system rollout. Changes already in place include the integration of the Twitter feed to provide real-time alerts and updates on the home page.
- Team Collaboration Site: In June, the Commission's extranet site launched. This portal offers CET and Advisory Council members password-protected access to meeting content, minutes, and research documents.

Connecticut Education Network (CEN)

Background

CEN is America's first statewide K – 12 and higher education network built exclusively using state-of-the-art fiber optic connections. Established in 2000, CEN provides a high-speed, redundant connection to every school district and most public libraries in the state. These educational institutions use CEN to access the Internet, Internet2, and the state digital library (researchIT) and profit from CEN's free training in new educational technologies. CEN also serves higher education and private K – 12 institutions, government agencies, and open access members.

CEN maintains connections to 156 library sites, including 134 principal public libraries. There are a total of 39 CEN connections to higher education institutions, including 11 of the state's community college campuses.

CEN has 92 connections to Connecticut towns and regional Councils of Government (COGs) and 10 connections to other state agencies including DAS-BEST, the Department of Developmental Services (DDS), the Department of Emergency Services and Public Protection (DESPP), the Department of Motor Vehicles (DMV), the CT Office of Higher Education, the Department of Insurance, the Department of Transportation (DOT), the Department of Veteran Affairs, and the Department of Energy and Environmental Protection (DEEP).

CEN has 19 open access members: Capital Region Development Authority (Pratt & Whitney Stadium at Rentschler Field), The Connecticut Center for Advanced Technology, the Connecticut Institute for the Blind (Oak Hill), the CT Municipal Electric Energy Cooperative (CMEEC), the Connecticut Public Affairs Network, Connecticut Public Television, the Connecticut Science Center, Digital Back Office Data Center, Discover Video, Internet2, Jackson Laboratories, Leaf Point (Valley Shore), Leaf Point (Orange), Perkin Elmer, Sea Research Foundation, Norwich Public Utilities, UConn Foundation, UConn Health Center, and Northwest CT Public Safety.

Annual Report

The 2016 calendar year saw an overall increase in usage of more than 60%. This past year has also seen improved performance and reduced costs for CEN members and state agencies through the connection and sharing of circuits across the Nutmeg Network. More than 25 Connecticut towns and COGs have connected to the CEN in the last stages of the Municipal Grant Funding program in the past year. The Network should soon exceed 100 connections to municipalities across the state.

Moving to Self-Sufficiency

This fiscal year saw a transition in funding models for CEN. Because of General Fund appropriation reductions of nearly $2M, the Network needed to charge schools and libraries for the use of data circuits that these organizations had in prior years accessed for free. As part of that transition, CEN modified its pricing structure to one that used tiered bandwidth, making it easier to understand and compare service levels. In addition, the new pricing structure does away with different rates for ISP and private Ethernet services (transport) as well as port charges on the network. Moving to this fee model enabled the state as a whole to garner more than $600,000 in federal eRate reimbursements to schools and libraries for fiscal year 2017.

Customer Type	Q1 Actual	Annual Total*
Schools	$ 127,655.00	$ 510,620.00
Libraries	$ 25,491.29	$ 101,965.16
	Total Reimbursement from USAC	**$ 612,585.16**
Estimate based on Q1 as of 12/12/16 approved funding		

Connecting Libraries

The State Bond Commission unanimously approved the allocation of $3.6 million to fund high-speed connections to the 90 libraries currently connected through digital subscriber line (DSL) circuits. In addition, libraries should receive eRate funding to help offset connectivity costs. CEN is looking to connect 40 libraries to fiber in the first year of this project.

Member Conference

In May 2016, CEN hosted 450 attendees at its fourth annual member conference. The day provided strong professional learning and networking opportunities for CEN's university, K – 12, municipal, library, and open access members as well as vendors.

New Services

The CEN Team has rolled out new services in FY16 that include distributed denial of service (DDoS) mitigation and managed Wi-Fi services. New on-network caching services provide faster access to providers such as Akamai, Facebook, Google, Microsoft, Netflix, and others while reducing content-delivery costs.

Expansion

CEN leaders are actively working with the Northeast Regional Education Network (NEREN) on a connection into New York City. This summer, the RFP to replace the existing optical network between Hartford, Storrs, Rhode Island, Cambridge, and Springfield was awarded to Cisco. Enhancements include a 100G ring from Cambridge, Massachusetts, to Storrs, Hartford, New Haven, New York City, and back through Albany, New York, to Springfield,

Massachusetts. Besides boosting capacity and reducing overall costs to members, these upgrades will allow CEN members to connect directly to major content providers such as Amazon, Microsoft, and Google. Network backbone capacity continues to increase to serve CEN member growing needs for the years ahead.

Connecticut State Library

researchIT CT

As part of the Connecticut Education Network, and administered by the Connecticut State Library, researchIT CT (researchitct.org) provides all Connecticut students, faculty, and residents with online access to essential library and information resources. Through researchIT CT, residents have access to a core level of information resources including secured licensed databases. Resources found in the database collection are used to support the Division of Library Development's seven literacies, including Digital Literacy, Health Literacy, Financial Literacy, Legal Literacy, Civic and Social Literacy, Basic Literacy, and Early Literacy. Specialized research information is also available to college students and faculty. The researchIT CT platform includes a collection of downloadable eAudios and eBooks for access on mobile devices such as smart phones and tablets.

The Goals of researchIT CT are:
- To ensure universal access to a core level of library and information resources for every resident of Connecticut through their public library, school, college, and home
- To help provide necessary information resources to every school in Connecticut so that all students are prepared to function in an information society
- To provide information resources to the increasing number of students taking advantage of online courses at Connecticut's colleges and universities
- To support the information needs of all Connecticut residents

Budget and Cost Avoidance
Legislative and gubernatorial cuts to the researchIT CT database line item were absorbed by renegotiating payment schedules with database vendors.

The total cost of all researchIT CT databases to local communities exceeds $35 million in one year, while the cost to provide those databases was in excess of just $1.5 million. This represents a cost avoidance of more than $33 million. For details, readers can refer to the publication Cost Benefit: What iCONN Saves the State's Libraries and Municipalities

In the past fiscal year researchIT CT database vendor ProQuest opened ABI/Inform, a business information resource formerly reserved for academic libraries only, to public libraries and at no additional cost. Besides business directory information, ABI/Inform includes business-focused periodicals such as the *Harvard Business Review.*

Usage

For FY 2016, researchIT CT's licensed full-text databases had a total of 8,332,507 page views (a measure of when search results are actually viewed), 1,228,847 or 14.7% from public library patrons; 1,709,416 or 20.5% from school library patrons; and 5,394,244 or 64.7% from academic library patrons. The total number of page views represents a 1.6% increase compared with volume from the previous fiscal year.

The researchIT CT statewide collection of downloadable eAudios and eBooks includes 3,574 titles, which were checked out 9,266 times, a 5.6% increase over download totals from the previous year.

findIT CT

Connecticut's statewide library catalog, findIT CT, went live in May 2016 and now contains the holdings of more than 200 libraries in Connecticut, with more libraries being added in the coming weeks. The catalog currently contains about 20 million records. We anticipate the rollout of the Interlibrary Loan system in early 2017. The servers and equipment that run findIT CT are located at Digital Back Office (DBO) in Wilton, CT. DBO's data centers are directly connected to the CEN, so the new system is taking full advantage of the Network's speed and dependability.

Digital Collections

The *Treasures of Connecticut Libraries* digital collection remains available and had 7,267 item views in 2016. It contains 1,799 objects from 51 libraries and their partnering institutions. Information about the Treasures project can be found at the following Web page: http://cslib.cdmhost.com/cdm/landingpage/collection/p128501coll0

The first issues of the *Newspapers of Connecticut* digital collection were added in March 2011. A total of 7,359 newspaper issues from more than 90 newspaper titles have been added to the collection. The *Newspapers of Connecticut* collection had 15,699 item views in FY 2016. Newspapers digitized by local libraries in Connecticut are now included in this collection. Information about the project can be found at the following Web page: http://cslib.cdmhost.com/cdm/landingpage/collection/p15019coll9. Note: this collection has remained in the top five most popular Connecticut State Library digital collections for the past five years.

Increasing Usability and Removing Barriers to Access

With the rebranding from iCONN to researchIT CT, existing iCONN permalinks were converted to the new domain name to ensure ease of access. A new WordPress theme was adopted for the researchIT CT Web site that is consistent with the State Library site. Accessibility functions added to the researchIT CT Web site include high-contrast, grayscale,

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and font size options; a revised color scheme for accessible contrast levels; and a Google text translation function. Voice browser readable tags were also added to all database Web buttons in researchIT CT site pages.

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A service of the CT State Library

eGO

The State Library's eBook platform, eGO, is now under development. When completed and fully functional, eGO will make it possible for public library users throughout the state to access their own library's eBooks, the researchIT CT collection of eBooks, and possibly a regional library network collection of eBooks, all from a single mobile app in either the iOS or Android platform, with a Kindle app to follow later. Currently, the server environment for the service is under development by Day1 Solutions, and the middleware and connectors needed to make it function with titles and on the mobile app are being built by staff of the New York Public Library, whose SimplyE app will be the basis for the eGO app.