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**CHIEF INFORMATION/CHIEF TECHNOLOGY OFFICERS COMMUNICATION TOOLKIT**

This toolkit describes the role of chief information officers/chief technology officers (CIOs/CTOs) in supporting learning in the digital age to help ensure that students are best prepared for college and careers. CIOs/CTOs play a critical role and are at the hub of the implementation of digital tools and resources. Effective student learning using digital tools and resources is only possible when CIOs/CTOs are involved in all facets of implementation – strategic planning; vision; implementation; and reflection. Specific areas addressed in this toolkit are connectivity, budget, homework gap and student data privacy. State and district leaders can share this toolkit with CIOs/CTOs to provide information and strategies around the implementation of digital learning. CIOs/CTOs member organizations can also share this toolkit with members to advance learning in the digital age. This toolkit includes a communications packet with sample documents that are customizable for you to use as you support your CIOs/CTOs.

**LEARNING IN THE DIGITAL AGE**

Technology is an essential component of learning today. With digital applications, tools and resources, students can create content, interact with experts, collaborate with peers and participate in simulation activities. Personalized experiences put students at the center of learning and empowers students to take control of their own learning through flexibility and choice. The [Every Student Succeeds Act (ESSA)](https://www.ed.gov/essa) acknowledges technology’s role in revolutionizing learning and includes definitions for digital learning and blended learning, and references technology throughout the legislation. In the [Non-Regulatory Guidance Student Support and Academic Enrichment Grants](https://www2.ed.gov/policy/elsec/leg/essa/essassaegrantguid10212016.pdf) publication provides an overview of activities LEAs may consider as they prepare for implementation of the effective use of technology (ESEA Section 4109). Specific activities include: supporting high-quality professional development for educators, school leaders, and administrators to personalize learning and improve academic achievement; building technological capacity and infrastructure; carrying out innovative blended learning projects; providing students in rural, remote, and underserved areas with the resources to benefit from high-quality digital learning opportunities; and delivering specialized or rigorous academic courses and curricula using technology, including digital learning technologies. Similarly, the [National Education Technology Plan (NETP)](https://tech.ed.gov/files/2017/01/NETP17.pdf) calls for a “revolutionary transformation rather than evolutionary tinkering” in education and recognizes that we must leverage technology to provide engaging and powerful learning experiences for all students. Technology offers all students – urban, rural, low-income, ESL, special needs, high achieving – the opportunity to engage in dynamic learning activities. Education leaders at the federal, state, and local level have the opportunity to provide leadership to ensure that all students have personalized, engaging learning experiences.

**ROLE TO SUPPORT LEARNING IN THE DIGITAL AGE**

The CIOs/CTOs role is not just about making sure the devices are working and educators are connected to the internet. CIOs/CTOs play an essential role in strategic planning and vision setting; understanding teacher and student needs for instructional materials and devices; determining internet and wireless access points; identifying key systems for data collection and assessment; and budgeting for technology. CIOs/CTOs must be included in the planning and discussions regarding adoption and implementation of instructional materials and online tools and services, in addition to plans for maintaining and expanding broadband access.

[CoSN’s Framework of Essential Skills of the K-12 CTO](http://www.cosn.org/sites/default/files/pdf/Framework_111815_2015_Public.pdf?sid=21247) offers CIOs/CTOs a practical model for ensuring that they have the appropriate skills to support learning in the digital age. The framework identifies 10 essential skills and is organized around three professional categories:

* Leadership and vision
* Understanding the educational environment
* Managing technology and support resources

As part of the strategic planning and implementation process, CIOs/CTOs should connect with key leaders to ensure that all stakeholders understand the needs and requirements for implementing the district’s vision for student learning in a digital age. Leaders may include:

* Chief Education Officer / Superintendent
* Chief Academic Officer / Instructional Leaders
* Instructional Materials Leader
* Assessment and Data Leader
* Digital Learning Leader
* Chief Financial Officer or other Business Leader
* Special Education Leader
* Title I/II/III Leaders
* CTE Leaders
* Professional Learning Leader

As CIOs/CTOs meet with other key leaders, some of the discussion questions may include:

* Will our content delivery system/learning management system support your goals?
* Will our school/district have the technology capacity to deliver content efficiently and effectively?
* Is the broadband infrastructure sufficient for robust simultaneous access for most users?
* Do students have ubiquitous device access in school?
* Do students and teachers have ubiquitous device access out of school?
* Is Wi-Fi available on campus in all learning spaces?

*“Collaboration is key to transforming learning opportunities, CIOs/CTOs must coordinate with administrators, academic officers and directly with teachers to help ensure that the tools and resources are readily available for learning.”*

*Keith R. Krueger, CEO, Consortium for School Networking*

**KEY CONCERNS FOR CIOs/CTOs**

This section highlights some of the key concerns that CIOs/CTOs might need to address when implementing digital learning in districts and schools. They include budget, connectivity, data privacy and security, and the homework gap.

**Budget**

**How are we going to pay for high-speed broadband, wireless access and devices?**

Many states and districts are utilizing Total Cost of Ownership (TCO), a financial estimate that includes metrics and processes to determine the total cost of acquiring and maintaining devices and instructional materials. Shifting to digital learning requires critical consideration regarding both access to the instructional materials and maintaining the technology tools and services to support the devices and content. CIOs/CTOs/ play a vital role in making sure that administrators understand the overall cost for selecting and implementing devices and instructional materials. They are also a linchpin to gain buy-in for technology programs and can garner support for funding from parents, school board members and policymakers. For districts that engage in transformative budgeting, a model that accomplishes innovation within existing budgets, CIOs/CTOs need to be part of the conversation. The following three essential strategies characterize transformative budgeting when applied to technology readiness for digital learning:

* Alignment of technology expenditures with the goals in the district’s strategic plans.
* A cross-functional budget leadership team that brings together finance, technology, curriculum and instruction.
* Transformative zero-based budgeting – a process through which education leaders begin each budget cycle at zero in each category, and then add costs to the budget only when there is evidence that such costs are required to meet goals.

**Learn more about budgeting**

[CoSN’s SmartIT Initiative](http://www.cosn.org/SmartIT)

[North Carolina Digital Learning Plan](https://ncdli.fi.ncsu.edu/dlplan/)

[New Jersey, Transformative Budget for Digital Learning](http://njdigitallearning.org/wp-content/uploads/2015/04/Transformative-Budgeting-final.pdf)

**Connectivity**

**We are implementing a one-to-one initiative and using digital instructional materials. How do we ensure that our districts and schools have the necessary bandwidth to use digital resources?**

High-speed broadband is essential as bandwidth capacity determines which digital instructional materials and educational applications students and educators can effectively leverage in the classroom. Designing high-capacity and widely available networks, including the utilization of wireless networks is a crucial responsibility for CIOs/CTOs and essential for implementing digital learning. Experts in the field predict significant internet growth needs in the short-term. [ENA](http://www.setda.org/wp-content/uploads/2016/09/SETDA-Broadband-ImperativeII-Full-Document-Sept-8-2016.pdf), based on its experience delivering connectivity to over 5,500 schools and libraries, continues to observe and projects into the future an internet growth rate of 65% per year. [EducationSuperHighway](https://www.educationsuperhighway.org/upgrade-program/) predicts that the typical school district will need to triple its bandwidth in the next three years. With the rapidly growing need for faster and more reliable internet access, CIOs/CTOs will need to be flexible and adaptable to meet the learning needs of educators and students. CIOs/CTOs can consult SETDA’s [recommended capacity targets for 2017-2018 and 2020](https://d.docs.live.net/852102addf870220/Documents/Revolutionize%20Learning/Final%20Drafts/%3A%20http%3A/www.setda.org/priorities/equity-of-access/broadband-imperativeii-2016/). The [Building Technology Infrastructure for Learning Guide](https://tech.ed.gov/futureready/infrastructure/) is another resource that covers four main areas related to connectivity:

* Understanding types of available connectivity
* Four paths for connecting districts and schools
* Cost drivers and funding sources to consider
* Special considerations for rural areas

**Learn more about connectivity**

[Building Technology Infrastructure for Learning Guide](https://tech.ed.gov/futureready/infrastructure/)

[Roadmap for 21st Century Learning Environments](https://www.roadmap21.org/infrastructure.html)

[Smart Education Networks by Design (SEND)](https://cosn.org/focus-areas/it-management/send-smart-education-networks-design)

[State K-12 Broadband Leadership: Driving Connectivity and Access](http://www.setda.org/wp-content/uploads/2016/04/Broadband_2016.4.11.16_updated.pdf)

**Homework Gap**

**We know that some of our students are part of the homework gap. How can we ensure that all of our students have reliable access to digital tools and resources outside of school?**

The term “homework gap” refers to the digital divide that exists between those students who have access to the Internet at home and those who do not. That reality is well documented through the [Pew Research Center](http://www.pewresearch.org/fact-tank/2015/04/20/the-numbers-behind-the-broadband-homework-gap/) that reports 5 million households with school-age children do not have broadband access at home. Low-income households—especially Black and Hispanic households—make up a disproportionate share of those households. The FCC’s [2016 Broadband Progress Report](http://transition.fcc.gov/Daily_Releases/Daily_Business/2016/db0129/FCC-16-6A1.pdf) states that “broadband is not being deployed to all citizens in a reasonable and timely fashion.” Additionally, only 2% of school systems report that ALL their students have access to devices outside of school. Collaborating with community members, local businesses, and other stakeholders is a key takeaway when addressing digital equity.

Some districts have actively partnered with internet providers in their communities to offer discounted service fees, others issue hot spots that students can take home, while others have adjusted school library hours to offer more access. Public libraries are another option for helping to address the “homework gap”. Many libraries offer access to free wireless internet, computers and devices, and digital resources. The [FCC’s Lifeline program](https://www.fcc.gov/general/lifeline-program-low-income-consumers) is another option for low-income families to acquire discounted broadband service at home. SETDA’s [Broadband Imperative II: Equitable Access for Learning](http://www.setda.org/priorities/equity-of-access/broadband-imperativeii-2016/) includes recommendations for out of school access dissemination and [CoSN’s toolkit](http://www.cosn.org/digital-equity) is a resource to support collaboration.

**Learn how some schools are addressing the homework gap**

[Broadband Imperative II](http://www.setda.org/wp-content/uploads/2016/09/SETDA-Broadband-ImperativeII-Full-Document-Sept-8-2016.pdf)

[Digital Equity Action Toolkit](http://www.cosn.org/focus-areas/leadership-vision/digital-equity-action-agenda)

[Building Robust Infrastructure as a Tool for Equity](https://medium.com/%40OfficeofEdTech/building-robust-infrastructure-as-a-tool-for-equity-7170a3cd8fda)

[FCC Lifeline Program](https://www.fcc.gov/general/lifeline-program-low-income-consumers)

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**Student Data Privacy**

**How can our district improve our communication to staff and stakeholders about the importance of student data and how we safeguard the data?**

Education data is essential to support both teachers and students as leaders work to meet individual needs both for educators and their learners. Data sets in schools include information such as student residency and lunch information to standardized test scores, formative assessments and log-ins for resources. CIOs/CTOs must safeguard the privacy of the data.

Consider these items:

* How are you disseminating information about policies for accessing student data - who can access information, and what can be accessed?
* How have you addressed student data privacy with your colleagues—chief academic officer, assessment officer, finance officer?

The [Trusted Learning Environment (TLE)](http://Trustedlearning.org) seal is one way a school system can show their commitment to implementing practices and policies that protect student data privacy. This seal defines practices that districts should be undertaking around handling of student data.

**Learn more about student data privacy**

[CoSN Privacy Tools](http://www.cosn.org/privacy)

[Data Quality Campaign](http://studentdataprinciples.org/the-principles/)

[Privacy Technical Assistance Center](https://nces.ed.gov/programs/ptac/)

[Trusted Learning Environment (TLE) Seal](http://Trustedlearning.org)

**DIGITAL LEARNING IN ACTION**

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[Attaining Broadband District-Wide](https://goo.gl/FZHdCQ), Howard-Winneshiek Community Schools, Cresco, IA

Howard Winneshiek Community Superintendent John Carver discusses how to bring a rural district to a place of connectivity district-wide.

**COMMUNICATION PACKET**

The communication packet includes customizable templates. Partners can add logos,

examples or other resources to help engage stakeholders and support this topic. Users are encouraged to leverage these resources to support your work in engaging school librarians by providing them with the resources needed to create an ecosystem of support and learning inside and outside of school walls.

* Newsletter/website snapshot
* Presentation slides to support conversations with stakeholders
* Social media promotion examples
* Press outreach
* Outreach email