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Future Ready Assistive Technology:

Fostering State Supports for Students With Disabilities

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Introduction

"Technology is the hallmark of the future, and technological competency is essential to preparing all students for future success. Emerging technologies are an educational resource that enhances learning for everyone, and perhaps especially for students with disabilities. Technological innovations have opened a virtual world of commerce, information, and education to many individuals with disabilities for whom access to the physical world remains challenging. Ensuring equal access to emerging technology in university and college classrooms is a means to the goal of full integration and equal educational opportunity for this nation's students with disabilities."(U.S. Department of Justice; U.S. Department of Education, 2010)

In 2010, in response to changes in funding and guidance for the purchase of assistive technology (AT) tools, the **National Center for Technology Innovation (NCTI)** and the **Center for Implementing Technology in Education (CITEd)** released Unleashing the Power of Innovation for Assistive Technology. This report provided insight into current and future investment, development, and research in AT and provided guidance for states in the use of federal funds from the American Recovery and Reinvestment Act of 2009 (Pub.L. 111–5).

Since the publication of this report, we have seen significant changes in the availability of technology tools, services, and resources that can improve education outcomes for students with disabilities. Tools and supports that were once prohibitively expensive or difficult to use (e.g., voice recognition, speech to text, augmentative communication devices) are now commonplace in our classrooms and our pockets. Six years ago, students requiring AT relied almost entirely on specialized, stand-alone devices and software programs. Furthermore, many of these devices were of limited value to students with disabilities because they could not be customized to their needs and desired outcomes.

Fast-forward to today: Many users with disabilities are accessing AT through the Web, with embedded supports in texts and documents (e.g., text to speech, screen reader functions, voice recognition), wearable devices, and supportive apps on their smartphones. Likewise, access to tools of production such as 3D printers, app development tools, and easily programmed hardware components (Arduino, Raspberry Pi), combined with crowdfunding (e.g., Kickstarter, Indiegogo) offer ways for people to create and market customized AT tools. This explosion of new technologies has profoundly affected the ways in which students with and without disabilities are using digital devices and resources for learning. We now find that AT functionality has moved into mainstream technology.

In conjunction with these advancements in AT and educational technologies, the federal policy landscape has shifted to focus on innovative ways to leverage technology for learning (e.g., ConnectED, Future Ready Schools, 2016 National Education Technology Plan), evidence-driven instruction for students with disabilities (Results Driven Accountability) and an increased flexibility for states to develop their own plans for school improvement and innovation (Every

Student Succeeds Act). Within this policy landscape, state and local decision makers have an unprecedented opportunity to fund technology innovations and professional development, and to develop strong plans for school improvement that combine technology tools with high-quality, evidence-based instruction to drive improved outcomes for all students (see the text box for brief descriptions of federal initiatives).

To truly meet the vision set forth by these initiatives, it will be critical for states, districts, and teachers to master the use of educational and assistive technology to ensure that learning both in and out of school is differentiated, personalized, and accessible to all learners.

As we look toward the future, the **Center on Technology and Disability (CTD)** builds on the work of NCTI and CITEd with this updated report on the future of technology to support students with disabilities. It underscores the fact that rapid changes in technology will continue to shape the future of special education, blurring the lines between AT and mainstream technology. Furthermore, an increased focus on "anytime, anywhere" learning opportunities will have a profound impact on students with disabilities. An understanding of the shifts in the technology landscape and possible future directions for the field is imperative for state education agency (SEA) leaders as they develop the procedures, guidance, policies, and funding structures to support future-ready special education programs and initiatives.

FEDERAL EDUCATION INITIATIVES AT A GLANCE

ConnectED

The ConnectED initiative sets nationwide goals for delivering access to high-speed Internet in schools and libraries as well as for calling on significant private-sector involvement in providing high-quality, affordable digital content and devices for teachers and students. Learn more at http://tech.ed.gov/connected/

Every Child Achieves Act of 2015 (Public Law No: 114-95)

The Every Student Achieves Act of 2015 reauthorizes and amends the Elementary and Secondary Education Act of 1965 (ESEA). See the following White House Fact Sheet for more information: https://www.whitehouse.gov/the-press-office/2015/12/03/fact-sheet-congress-acts-fix-no-child-left-behind

Future Ready

To support the work of the ConnectED Initiative, the U.S. Department of Education's Office of Educational Technology (OET) is bringing together schools and districts working on technology innovation through the Future Ready District Pledge. Learn more at http://tech.ed.gov/futureready/

2016 National Education Technology Plan

The 2016 National Education Technology Plan (NETP) sets the national agenda for educational technology policy in the United States. It provides key ideas, recommendations, and examples of the transformative use of technology to enhance teaching and learning. Learn more at http://tech.ed.gov/netp/

Results Driven Accountability

The Results Driven Accountability initiative (RDA) has resulted in a shift from a focus on an accountability system of compliance with the Individuals with Disabilities Act (IDEA) to a system that emphasizes improved outcomes for students with disabilities. RDA requires states to develop State Systemic Improvement Plans (SSIP) and to identify specific state-identified measurable results (SiMR). Learn more at http://www2.ed.gov/about/offices/list/osers/osep/rda/index.html?exp=7

State-of-the-Art Assistive Technology: 2010, 2016, and Beyond

Defining State-of-the-Art Assistive Technology: 2010

In the 2010 report, we identified five key themes representing state-of-the-art AT as a result of surveys with experts in the field, literature reviews, and years of tracking trends in technology innovation (Gray et al., 2010). Although the technology has changed rapidly in the six years since this report was written, the themes—and the underlying design imperative that devices and systems should be simple and "born accessible"—provide us with a useful framework for evaluating state-of-the-art AT in 2016.

At the time of the 2010 report, many of the technologies that encompass these themes were in their infancy. We were just beginning to see the convergence of systems into single devices and the merging of consumer-level technology with AT tools and features. Although portable and customizable AT devices were on the horizon, they had not yet saturated the market.

Convergence: transformation of various systems or devices into a single platform or device

Customizability and Universal Design for Learning (UDL): designed to be configured to meet the unique needs of individuals

Research- or Evidence-Based: supported by evidence of effectiveness for students with disabilities

Portability and Promotion of Independence: assistive technology that offers the flexibility to be used in various settings and that moves with the user

Interoperability: the ability of two or more systems to exchange information

Defining State-of-the-Art Assistive Technology: 2016

The last six years have seen rapid shifts in the technologies we use to learn, communicate, work, and play. Although consumer-level advances in mainstream technologies are not always "born accessible"—that is, designed with AT applications in mind—the following developments have had an impact on users with disabilities:

- Smaller and less expensive hardware allows for the development of compact devices and wearable electronics.
- Reductions in power needs and availability of new, more affordable, and smaller power sources enable portability and wearability of powerful devices.
- Innovations in display technologies (e.g., touch screens)

A LOOK BACK AT THE TECHNOLOGY LANDSCAPE OF 2010

- The first iPad is released.
- Consumer-level 3D technologies, such as televisions and digital cameras, emerge.
- Motion-capture and gesture-based gaming, such as PlayStation Move and Xbox Kinect, is introduced.
- The first 3D-printed car is launched.
- New developments lead to the "Internet of Things."
- Cloud computing becomes more common.
- 1,200 exabytes of data are created. (1 exabyte = 1 billion gigabytes.)
- Khan Academy receives Google funding to expand course offerings.

(Bort, 2011; McKeegan, 2010; Miller, 2010; Quick, 2010; Richmond, Barnett & Warman, 2010)

- Improvements in networks and broadband capabilities (e.g., widely available high-speed Internet in most public spaces, faster Internet in schools, access to the Internet through smartphones)
- New developments in user interfaces and input options (e.g., touch screens, gesture recognition, brain interfaces, haptic feedback)
- Open-source and social media-driven community development (e.g., Arduino, DIY and Makerspaces)
- Consumer-level access to tools of development and creation (e.g., 3D printers, Raspberry Pi, app development tools)

These changes have moved us to the state-of-the-art vision articulated in the 2010 report (i.e., development of tools that are more flexible, portable, customizable, and interoperable) and beyond. We now face a new demand for tools that are context-specific, user-created, data-driven and nimble, wearable, embeddable, networked, and device agnostic. (See Table 1 for alignment of new technologies with 2010 themes.)

WHAT IS THE INTERNET OF THINGS/INTERNET OF EVERYTHING, AND WHAT WILL IT MEAN FOR SCHOOLS?

The "Internet of Things" (IoT) refers to everyday objects that are networked and connected to the Internet. These objects can collect and send data, store information in the cloud, and they may make use of real-time processing and cognitive computing. As we move forward, "…we are seeing the dawn of an era when the most mundane items in our lives can talk wirelessly among themselves, performing tasks on command, giving us data we've never had before" (Wasik, 2013, np). It is estimated that by 2020, 50 billion devices will be connected through IoT (compared with 15 billion today) and that the global IoT market will grow from $655.8 billion to $1.7 trillion (Dora, 2015; Taylor, 2015).

These objects will present new opportunities for people with sensory and physical disabilities and applications for people managing chronic illnesses such as diabetes or epilepsy. The IoT also presents teachers, clinicians, schools, and districts with the opportunity to collect and analyze unprecedented amounts of data related to student health indicators, relationships between aspects of the school environment (e.g., temperature and lighting), and student achievement; IoT will help track how and when students are using various tools and resources, and it will use brainwave activity and physiological responses to determine which interventions are most effective for each student. With the availability of these data, SEAs and local education agencies (LEAs) must be prepared to address questions of privacy, how they intend to store and use the data, and whether students will have access to their own data (Selinger, Sepulveda, & Buchan, 2013).

Table 1: Game-Changing Technology Advances With Implications for Assistive Technology

	Convergence	Customizability/ UDL	Research or Evidence Based	Portability and Independence	Interoperability
Internet of Things	X	X	X[1]	X	X[2]
Wearables	X	X	X[1]	X	X[2]
Flexible User Interfaces (e.g., touch, sound, gesture, brainwave[3]	X	X	X	X	X[2]
Do it Yourself (DIY)/Maker Movement	X	X		X	

[1] Many of these tools and devices have the potential for developing a significant research base due to their collection of data. Mechanisms for analyzing and using these data efficiently are still in development.

[2] Some of these tools are being designed to work seamlessly with each other, regardless of platform, whereas others are being designed to work best with certain devices (e.g., iPhone, Android).

[3] Many of these devices overlap with the Internet of Things, wearables, and DIY assistive technology.

Though none of us can predict with certainty what comes next, several promising technologies point the way to future innovations in AT that are relevant to SEA leaders throughout the country. Many of these technologies are in emerging markets and have yet to become commonplace our schools, homes, and communities. It is likely, however, that in the next five years many of these devices will become integral to the daily lives of students, both with and without disabilities.

How Are Wearables Changing Assistive Technology?

With ever smaller and less expensive hardware and component pieces flooding the consumer marketplace, wearable technologies are fast becoming a fixture in our everyday lives, primarily in the form of fitness trackers and smartwatches. But beyond being able to measure our heart rate and count our steps, wearable technologies hold significant promise for people with disabilities. From smartwatches that communicate easily with hearing aids, to shoes that provide sensory feedback for people with visual impairments, to specially designed clothing that helps deaf or visually impaired people navigate, to glasses that let the blind "see," to watches and shirts that monitor seizures or stress reactions in people with autism, wearables are starting to flood the assistive technology market. Many of these devices likely will be purchased by the consumer or through health insurance programs, rather than as part of a school's assistive technology responsibilities. However, districts do need to be prepared with an infrastructure that supports widespread use of connected, wearable devices with reliable broadband as well as policies that support student use of smartwatches and other wearables to facilitate physical, sensory, emotional, behavioral, and executive functioning.

A Look Ahead—Schools of the Future

"Part of the purpose of UDL is to identify where there is systematic variability so that we can design instruction that recognizes and takes advantage of these variabilities. For example, we can design tasks keeping in mind social, emotional, and behavioral learning, and how to engage students in ways that are compatible with their affective state" (Daley, 2014).

Imagine yourself visiting a school in the next three to five years. What might the school environment look like? As you approach the door, your biometric-equipped smartwatch provides authentication of your identity, and the doors swing open.

As you walk through the halls, you notice that students are wearing smartwatches or some other form of wearable technology to support their learning goals or access to the curriculum or to manage their physical needs. For example, one student with epilepsy uses hers to monitor her seizure activity and report data to her family and physician. In the event of a seizure, her mother is notified immediately. A blind student's refreshable Braille smartwatch allows him to read e-books, receive text messages from his teachers, and access online content easily. You note that a student in a wheelchair uses her wearable device to open the door to her classroom. Another student, who is deaf or hearing impaired, receives an alert on her smartphone as the bell rings, signaling her to change classes thanks to an app that is capable of recognizing and distinguishing different sounds. Another student with low vision uses his smart camera mounted on a pair of glasses to navigate the school and find his classroom independently.

Farther down the hall, a few teachers are participating in a remote consultation with assistive technology experts, presenting student challenges and receiving real-time professional development in the form of problem-solving support and technology recommendations. Meanwhile, a student in the room next door is using videoconferencing technology to receive speech and language teletherapy. You also see a student with limited mobility use her touch-free smartphone to access assignments and deadlines on the class website.

As you walk into a nearby classroom, you see that the learning space is designed for optimal movement: Desks easily roll into new configurations, and comfortable seating and collaborative workspaces have been configured into the layout of the class. A group of students sits around a table with a built-in projection screen, allowing each of them to easily share their work and collaborate on a project. Wireless charging stations in classroom furniture allow students to work anytime, anywhere, freeing them up from laptop carts and outlets. The lighting in the room has been adjusted to enhance concentration and attention; after lunch, the teacher will change the levels slightly to help students "wake up" because she knows they are often sleepy and sluggish after they have eaten. Using an app on her phone, the teacher establishes multiple lighting settings that she can easily alter for different tasks and activities. She will use data collected from wearable brain sensors to identify when and how students learn best as well as when they are stressed, anxious, or struggling with the work. Other students are using brain sensors to write the music for a new game they are developing, while a nonverbal student uses

his brain-computer interface to communicate with his peers and suggest ideas for game development. The students and teachers also are making use of custom-designed smartphones, adding component pieces and upgrading elements as needed.

You stop by the teachers' lounge, where some of the instructors show you their data dashboards. These devices utilize pattern recognition software and analysis to connect student behavior and achievement with a variety of factors: cognitive activity registered by brain-sensing headsets, students' heart rates and stress reactions detected by their smartwatches, and the ambient lighting and temperature controlled by networked "smart" lighting and cooling systems. The teachers use this information to help drive their decision making in curriculum planning, classroom design, instructional goals, and use of evidence-based interventions and strategies.

Outside, student athletes use their smartwatches to monitor their physical activity and health indicators. One student recently detected a life-threatening issue after football practice by noting that his heart rate had stayed dangerously high long after practice had ended. A visually impaired student navigates the school grounds wearing haptic footwear that supplies sensory input to help him move around independently and avoid obstacles. A student with a speech disability that renders his speech difficult to understand is using an app that recognizes his approximations and translates them, allowing him to participate in conversation with his peers easily and naturally.

In the cafeteria, a deaf student uses a tablet with gesture recognition to translate sign language into speech for her hearing friends. A student with a brain injury sits down to access his customizable planning software; his scheduled appointment with a doctor has taken longer than anticipated, so his scheduler will automatically rearrange and update his calendar events to help him stay on track. Another student with autism uses the same app to manage activities and receive suggestions for coping with stress and behavior outbursts.

In a large workspace, students are using virtual reality devices to go on a field trip to the Smithsonian Institution, where they are able to pick up and manipulate historical artifacts and collaborate with other students around the world in making discoveries. Students in a workshop down the hall are using 3D printers to create a working prosthetic hand for another student who was recently injured in a car accident. Students in a math class are using physical objects to solve puzzles and math equations on a screen.

MAKING, HACKING, CREATING—DO-IT-YOURSELF (DIY) ASSISTIVE TECHNOLOGY AND THE MAKER MOVEMENT

AT specialists, special education teachers, occupational therapists, and related service providers have always been "makers." Whether due to limited funds or options for meeting the needs of their students, educators of students with disabilities often have to "get crafty" to help support their students: for example, using exercise bands stretched across chair legs, repurposed foam pieces for pencil grips, laminated communication boards, or cardboard stands for propping up tablets.

The Maker Movement is a technology-supported offshoot of DIY that is collaborative, community focused, and driven by open-source design. Maker culture focuses on design, innovation, creative problem solving, and invention, utilizing both online and in-person Makerspaces, fab labs, and hackerspaces, culminating in national and local Maker Faires. Making and hacking are critical elements of assistive technology design and development. With the tools of creation becoming more affordable and more commercially available, and with social media helping to connect people with disabilities with programmers, engineers, and Makers, the opportunities for truly customizable assistive technology have exploded. Makers, hackers, and DIYers are helping to push the future of assistive technology and devices by creating tools and devices that are highly customized, are portable, meet multiple needs, and help to promote user independence, particularly in the potential for users with disabilities to make their own assistive technology.

This shift is particularly valuable for users with low-incidence disabilities, or highly specific needs. Assistive technology has long suffered from economies of scale; many devices are expensive to make and may be useful or needed only by a small subset of people. From 3D printing of user-specific prosthetic hands to launching of crowdfunded, small-scale assistive technology development, Makers with and without disabilities are transforming the way we think about assistive technology. Schools and districts can support this work by encouraging the use of Maker curricula, teaching students how to design, build, and create using programming, 3D printing, and small-scale electronics. The assistive technology innovations of tomorrow will be developed by the students of today, such as the student team who designed Supportive Schedule, an app for kids with learning disabilities.

Resources for Exploring Making and Assistive Technology:

Disability Hackathon: http://connectability.devpost.com/

DIYAbility: http://diyability.org/

Enabled by Design: http://enabledbydesign.org/

Make: magazine: http://makezine.com/projects/

Lifekludger: http://lifekludger.net

e-NABLING the Future: http://enablingthefuture.org/

Many of the technologies we see in our imagined school of the future seem like science fiction, but with a few exceptions, they are all products, services, and tools that are commercially available today. Although they have not yet crossed the threshold into becoming a ubiquitous or even common presence in our schools, homes, and workplaces, they are beginning to shape the way we interact with technology in new and exciting ways. It is very likely that in the not-so-distant future, your students—both with and without disabilities—will regularly be using these types of tools daily.

The challenge and the opportunity for SEA leaders will be to ensure that schools are ready to embrace the use of these technologies while remaining sensitive to issues of student privacy, budgets, changing pedagogy, and best practices for learning and engagement for students with disabilities.

Preparing for the Schools of the Future: Implications for SEAs

The Policy Landscape

"Learning experiences enabled by technology should be accessible for all learners, including those with special needs. Supports to make learning accessible should be built into learning software and hardware by default. The approach of including accessibility features from the beginning of the development process, also known as universal design, is a concept well established in the field of architecture. Modern public buildings include features such as ramps, automatic doors, or braille on signs to make them accessible by everyone. In the same way, features such as text-to-speech, speech-to-text, enlarged font sizes, color contrast, dictionaries, and glossaries should be built into educational hardware and software to make learning accessible to everyone." (U.S. Department of Education, 2016)

As we move into 2016, the time to begin shaping our schools of the future is now. The technology is here, the supports for widespread implementation (e.g., funding, improved broadband access) are available, and federal and state technology initiatives are encouraging districts to reenvision how they use technology to enhance teaching and learning. To foster educational innovation and the ability to leverage technology tools and resources, leaders need to work across departments and agencies to align goals, streamline initiatives, and efficiently allocate funds from ever shrinking budgets.

Is Special Education Future Ready?

"Educational technology advances quickly. Many of the terms we use today to describe technology-enhanced learning did not exist when laws such as the Elementary and Secondary Education Act of 1965, as amended (ESEA) and the Individuals with Disabilities Education Act (IDEA) were written. However, that does not mean that federal programs can't be used to support thoughtful implementation of educational technology…."(Dear Colleague Letter, 2014).

Driven by an increased focus on higher standards and the need for 21st century skills to ensure that all students are college and career ready, states are developing innovative solutions to meet the needs of all learners. Thoughtful use of AT and educational technologies can help teachers provide support that helps their students with disabilities to become college and career ready; however, educators will need considerable guidance from SEAs and LEAs to ensure that they are using technology in ways that reflect best practice and the best evidence on student learning.

As technology changes the ways in which students engage with educational materials and the settings in which they learn, our understanding of what represents a Free Appropriate Public Education (FAPE) and Least Restrictive Environment (LRE) must also shift. LRE in a physical classroom or space may look very different from LRE in a virtual or blended learning environment. An online learning environment can be both *inclusive* due to a wide variety of accessible content and built-in supports and *exclusive* because it is isolating students from their peers and opportunities for social interaction. LEAs will need considerable guidance on how to navigate special education, IDEA, and student placement within the realm of online and blended learning (Burdette, Franklin, East, & Mellard, 2015). Finally, while there is a growing perception that the use of technology to support instruction can improve student experiences and learning outcomes, digital or online content does not ensure accessibility by students with disabilities, and digitization is not sufficient to meet the learning needs of all students. It is critical that leaders invest in planning, budgeting, building infrastructure, and providing training opportunities to realize the potential that technology advances offer.

What key questions do state and local education leaders need to consider with regard to funding, policies and procedures, and student privacy to ensure that all students benefit from technology-enhanced learning opportunities?

1. How can we leverage multiple funding sources for new technologies? When is technology "assistive"? When is mainstream technology the right choice for a student? When and how will school or district funds be used for these devices? See:
   - Office of Educational Technology—Dear Colleague Letter: http://tech.ed.gov/wp-content/uploads/2014/11/Tech-Federal-Funds-Final-V2.pdf
   - Education Commission of the States—Finance: http://www.ecs.org/?s=&fwp_issues=finance
   - Office of Educational Technology—Funding Digital Learning: http://tech.ed.gov/funding/
   - ConnectED Initiative—Private-Sector Commitments for Schools: https://www.whitehouse.gov/issues/education/k-12/connected#schools
   - Council of Chief State School Officers—Funding Streams to Assist Supports and Interventions: http://www.ccsso.org/Documents/FundingStreams_091415.pdf
2. What policies do we need to ensure equitable access to technology, both at school and at home? See:
   - 2016 National Education Technology Plan, Section 5: Enabling Access and Effective Use: http://tech.ed.gov/netp/infrastructure/
3. How does our concept of *least restrictive environment (LRE)* change when boundaries to learning are blurred or learning happens in virtual spaces? How will we reconcile new and emerging technologies with federal special education policies and procedures? See:
   - Center on Online Learning and Students with Disabilities—State Policies and Guidance: http://centerononlinelearning.org/resources/state-policy-guide/

- Practices and Challenges in Online Instruction for Students with Disabilities: State Education Agency Forum Proceedings Series (Report No. 3)—IDEA Principles in the Online Environment: http://centerononlinelearning.org/wp-content/uploads/SEA_Topic_3_Summary_updated_July_2015.pdf

4. What policies can support the use of accessible digital content and open educational resources (OERs)? See:

   - SETDA Policy Brief—The Accessibility of Learning Content for All Students, Including Students With Disabilities, Must Be Addressed In the Shift to Digital Instructional Materials: http://www.setda.org/wp-content/uploads/2014/03/SETDA_PolicyBrief_Accessibility_FNL.5.29.pdf
   - SETDA—Digital Instructional Materials: Acquisition Policies for States: http://dmaps.setda.org/
   - National Center on Accessible Educational Materials—State Policies: http://aem.cast.org/policies/state.html#.VkTtfPlViko

5. How can we take advantage of big data and the Internet of Things to personalize student learning and measure outcomes while maintaining student privacy and security? See:

   - Practices and Challenges in Online Instruction for Students with Disabilities: State Education Agency Forum Proceedings Series (Report No. 4)—Using, Sharing and Integrating Student Response Data from the Online Environment: http://centerononlinelearning.org/wp-content/uploads/SEA_Topic_4_Summary_July_2015.pdf
   - Data Quality Campaign—Roadmap to Safeguarding Student Data: Key Focus Areas for State Education Agencies: http://dataqualitycampaign.org/wp-content/uploads/2015/06/DQC-roadmap-safeguarding-data-June24.pdf
   - Data Quality Campaign—Student Data Privacy Legislation: What Happened in 2015, and What Is Next? http://dataqualitycampaign.org/wp-content/uploads/2015/09/DQC-Student-Data-Laws-2015-Sept23.pd
   - Reform Support Network—Education Enterprise Architecture Guidebook: http://www2.ed.gov/about/inits/ed/implementation-support-unit/tech-assist/education-architecture-guidebook.pdf
   - Cisco—Education and the Internet of Everything: How Ubiquitous Connectedness Can Help Transform Pedagogy: http://www.cisco.com/web/strategy/docs/education/education_internet.pdf

Beyond these important issues related to funding, policies, and guidance to LEAs, state leaders can lead the way in engaging with stakeholders across agencies, districts, and communities to answer the following question: *"What will special education look like in our state to ensure that it is 'future ready' and results driven?"*

Leading the Way to Future Ready Assistive Technology

Although our world has changed, schools find themselves "behind the curve" as a result of limited budgets and initiative fatigue. Many still consider large-scale technology implementation initiatives to be a challenge that they are not prepared to navigate. The confluence of policy shifts, new funding streams, and availability of relatively inexpensive technology offers SEA leaders the opportunities to create the necessary infrastructure, policies, funding, guidance, and professional development to better equip your districts to take advantage of rich technology tools that support all students, including those with disabilities.

As a state leader, you are in a unique position to help set the agenda and vision for technology-enriched education in your districts. Understanding the five key themes mentioned previously—and the transformations in the technology landscape that are coming in the next three to five years—can provide a framework within which to think about what LEAs need to be successful. SEA leaders can guide the way to rethink, reshape, and redesign both general and special education procedures to align with federal law (Gordillo, 2015) while addressing the changing technology landscape to ensure that students with disabilities have fair and equitable access to learning opportunities in the LRE.

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