

Building a Stronger Texas



Transforming Education through Technology

Long-Range Plan for Technology 2018–2023

September 2018

Letter from the Deputy Commissioner of Technology – Melody Parrish

September 2018

TO MEMBERS OF THE LEGISLATURE AND THE CITIZENS OF TEXAS:

Technology has dramatically shaped our society and is an integral part of all facets of daily life. Over the last decade, efforts to implement and utilize technology in the classroom have transformed education. Federal, state, and local governments have allocated billions of dollars in funding through programs such as E-rate to aid and support schools in the process of integrating technology into the classroom as research shows the impact technology has on academic performance. Therefore, technology must play a significant role in preparing all public-school students in the state for success in college, a career, or the military.

To begin the process of updating the Long-Range Plan for Technology (LRPT), TEA convened an advisory group made up of 15 stakeholders to provide feedback on the current and anticipated technology needs of Texas schools, and to provide feedback on the current LRPT. What we heard was a resounding call to make a fundamental shift in the form and usability of the LRPT. The advisory committee recommended that as a group we collaboratively create a well-organized and useful technology plan to guide local education agencies (LEAs) on technology, a plan that is concise and easy to use, one that they can utilize to develop their own technology plans. Based on input received from the advisory committee, the updated LRPT focuses on six strategic goals. Additional stakeholder input was obtained via survey to collect feedback on technologies that support the strategic goals and to collect examples where LEAs have innovative projects that exemplify these goals.

Technology is dynamic and constantly changing, requiring ongoing monitoring and updating to maximize its effectiveness. It requires IT leaders to be cost-efficient, innovative, and responsive, providing access anytime and anywhere while protecting information resources. TEA will be hosting webinars so all LEAs can learn more about the best practices that are happening across the state.

The goal in updating the LRPT is to provide information on how these six strategic goals can assist LEAs in their strategic planning for their organizations and collaboratively work together based on their individual needs. As technology continuously changes, TEA is committed to updating the LRPT every two years to stay current with emerging trends and changing priorities. On behalf of TEA, I am proud to present the 2018-2023 Long-Range Plan for Technology.

Sincerely,



Melody Parrish
Deputy Commissioner, Technology
Office of Information Technology Services
Texas Education Agency

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ABOUT THIS PLAN

Texas Education Code Sec. 32.001 states State Board of Education is required to develop a long-range plan for technology. This plan identifies technology goals for education over the next five years and guides local education agencies (LEAs) as they develop their individual technology plans. Note: For the purposes of this report, the term “local education agency” is used to indicate school districts and charter schools. The 2018–2023 Long-Range Plan for Technology is available on TEA’s website at www.tea.texas.gov.

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Overview

Information technology has allowed business, government, and schools to perform more efficiently, and it is no surprise that the next generation of Texans has come to expect technology not only to be present in every aspect of life, but to enhance and significantly improve every day experiences. Traditional ways of delivering education are being upgraded and improved with innovative and flexible learning opportunities. Real-time information and communications are available at your fingertips and, if properly implemented, can enhance, and improve education in Texas. Educators and technology leaders must collaborate to ensure technology initiatives align with overall organizational priorities to create a quality, safe, flexible learning environment for all students.

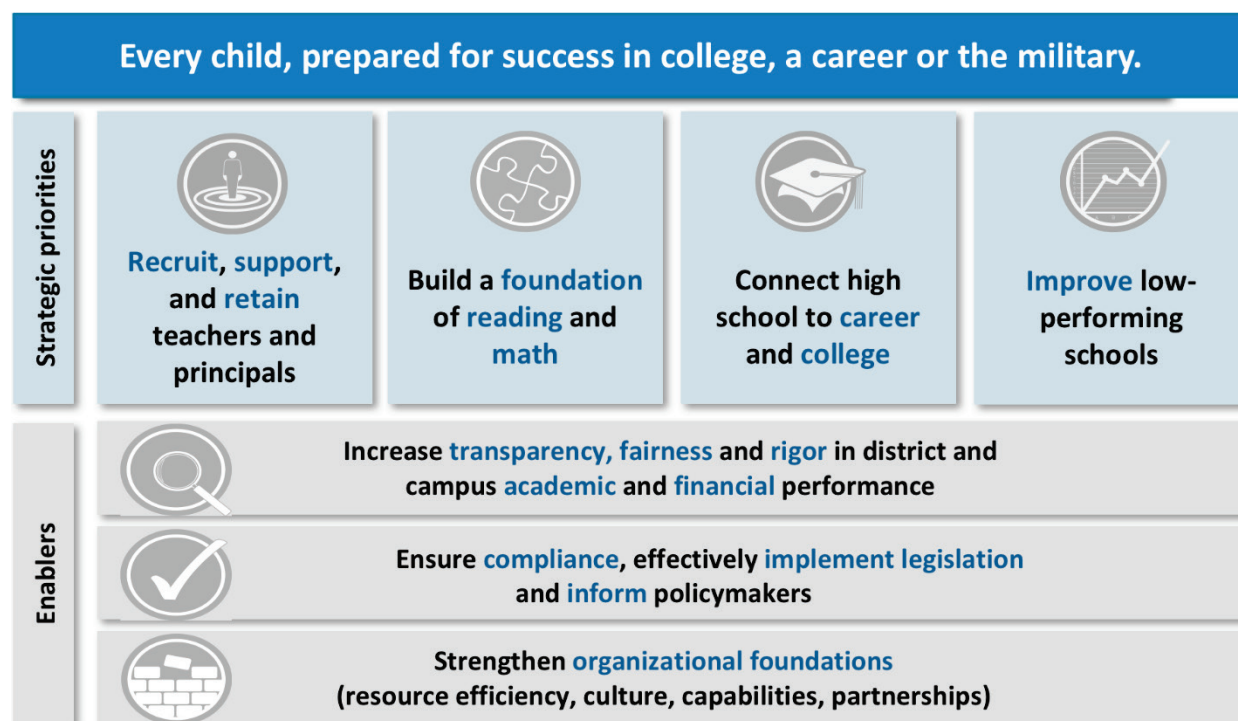
The Texas Education Agency convened 15 education technology leaders from local education agencies (LEAs), education service centers (ESCs), and technology organizations to form the 2018 Long-Range Plan for Technology (LRPT) Advisory Committee. This group was tasked with identifying the technology strategies and goals to positively enhance and improve education in Texas. The committee was asked to:

- Review and provide feedback on existing long-range strategic plans and best practices
- Explore current and anticipated technology trends, drivers, and potential impact on education in Texas
- Craft a 5-year vision for the information technology environment for education in Texas
- Identify and prioritize technical issues to be addressed to achieve the vision.

As identified in the *Long-Range plan for Public Education 2018*, Texans want a system of public education that is equitable, accessible, and staffed by skilled educators and that offers opportunities for students that will carry them through school and into college, careers, or the military. Today's students will be tomorrow's citizens and workforce, so ensuring that our young people are well educated is critical for the state to have a stronger future. An effective education system is key to equipping students with the knowledge, skills, and integrity to contribute to our state in positive ways. Technology is a driving force for transforming education as we know it, creating stronger, better-educated students, and ultimately building a stronger Texas.

Mission of the Texas Education Agency

The Texas Education Agency works to improve outcomes for all public school students in the state by providing leadership, guidance, and support to school systems. We are working towards a vision in which every child in Texas is an independent thinker and graduates prepared for success in college, a career, or the military, and as an engaged, productive citizen. To achieve this vision for public education in Texas, the Agency has outlined specific strategic priorities to guide and focus our work on behalf of the more than five million school children in our state.



TEA Agency Strategic Plan 2019–2023, adopted June 8, 2018.

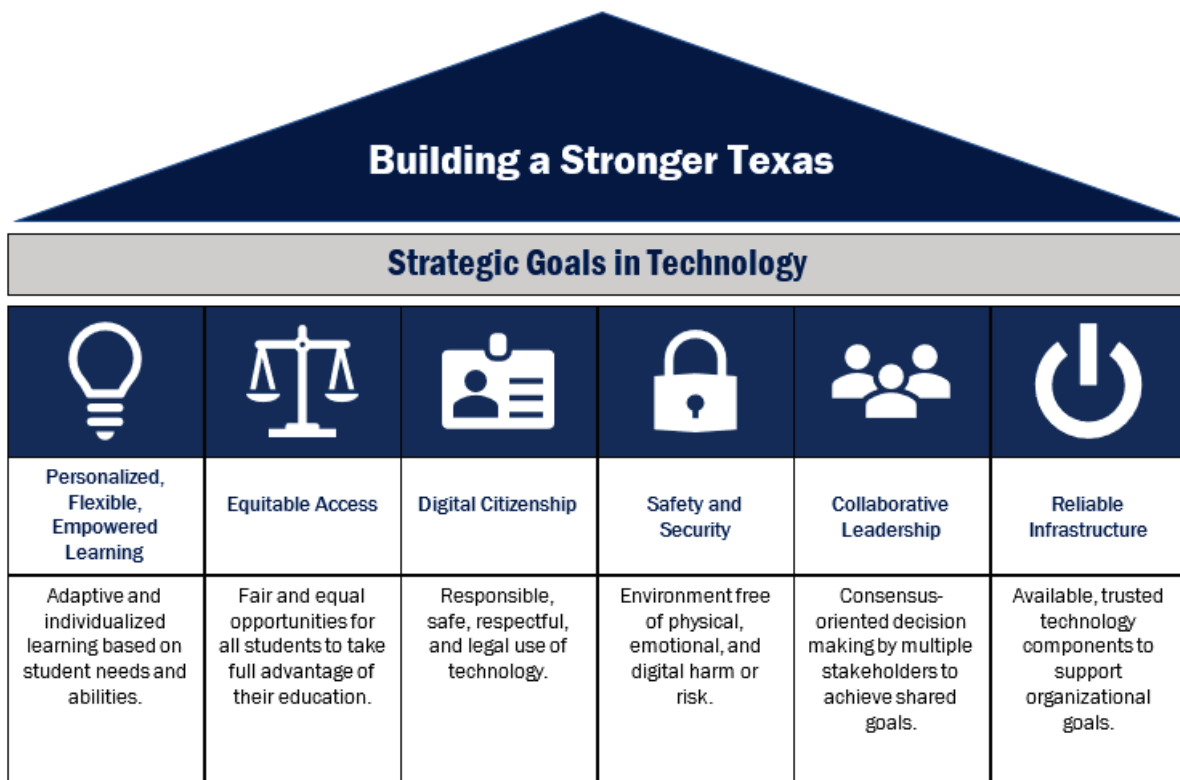
Technology can be used inside and outside the classroom to improve education and help meet the strategic goals of education statewide. It provides the tools and devices that may be used to solve real-world problems and is a driving force and enabler that can transform the learning experience. Technology can be used to support teachers and educators as well as open many new learning opportunities for all students.

Strategic Goals

The 2018-2023 Long-Range Plan for Technology presents technology trends identified by education technology leaders to positively enhance and improve education in Texas. This plan is intended to be a visionary guide to inform and influence LEAs in developing their own strategic technology plan. The LRPT Advisory Committee has developed six strategic goals and 18 focus areas that represent the technology trends and priorities in education. Each LEA should carefully consider how the six strategic goals outlined in this plan align with their own agency objectives and ensure positive progress is being made in each focus area.

Local education agencies are diverse and unique, and while they may share a great deal of common challenges like budget constraints, competing priorities, and security threats, each technology plan should be tailored to the individual needs, opportunities, and constraints of that LEA. While competing priorities and budget constraints may be a factor in how each LEA chooses to address these goals, it is important for each LEA to prioritize these the goals and focus areas in their technology plans based on their maturity, needs, and budget.

This plan follows the format of the DIR 2018-2022 State Strategic Plan for Information Resource Management and incorporates statewide trends in technology that can be utilized to enhance education in Texas. In a constantly changing technology environment, agencies must be cost efficient, yet innovative; measured, yet responsive; operational, yet strategic and visionary.



Personalized, Flexible, Empowered Learning Environment



STRATEGIC GOAL 1

Implementing a successful personalized learning practice requires a whole new way of thinking about education.

Imagine an education system where students move at their own pace, have the freedom to make decisions about their own learning, and adapt lessons to their own interests, abilities, and style. A system where students are engaged and motivated, and progress is inherently assessed along the way.

Students no longer need to be bound by the traditional classroom space or by traditional learning methods. Data can be used to present the right lessons at the time most needed.

Focus Areas:

1. Student-Centered & Adaptive
2. Reimagined Learning Spaces
3. Data-Driven Decisions

Student-Centered and Adaptive

Focusing on the needs and interests of the student

Adaptive technology may be one of the largest innovations of digital learning in the 21st century. LEAs should consider implementing a student-centered and adaptable learning practice.

Challenge

Personalized learning is a relatively new pedagogy and has many potential unknowns. Technology can be an enabler of personalized learning, but it cannot be implemented in a vacuum. While many educators strive for a successful personalized learning environment, some are unsure how to implement it in a scalable and repeatable manner across all classrooms and campuses.

Actions

→ **Create** a strategic implementation plan that addresses the shift in teaching methods, including changes to structures, policies, technology, and supports to facilitate innovation in schools.

→ **Collaborate** and involve all stakeholders including school boards, educators, administrators, teachers, students, and parents. Include functions like technology, professional development, and curriculum and instruction.

→ **Utilize** existing proven models. Learn from existing projects and studies. Be iterative, allow for corrections, and adapt as necessary to fit each environment.

→ **Model** the behavior. Use personalized, adaptive training techniques to instruct teachers and educators. Provide training and coaching on digital literacy and designing engaging lessons.

Outcomes

Short-term: Personalized content tailored for students, allowing individual preferences and choice to enhance more creative and innovative work.

Long-term: Fully prepared, independent-thinking, tech-savvy student population ready for the future.



Innovative Spotlight: A teacher in Region 20 used a digital display to allow students to interactively practice an animal heart dissection before entering the lab to complete the real procedure.

Reimagined Learning Spaces

Flexible online and physical environments for students and educators

The design and layout of a physical classroom can fundamentally change the learning experience for students. Spaces can be designed for student collaboration and autonomy, giving students a choice in what kind of learning space works best for them. With virtual courses, classes can be taken anywhere, lessening the need for physical classrooms.

Challenge

Classrooms have looked essentially the same for 80 years. As personalized, flexible curriculum becomes the norm, the traditional setting does not allow for the collaboration, movement, and autonomy needed for an open curriculum.

Actions

→ **Redesign** classrooms to create active learning spaces, suited to different types of learning. Create collaboration areas, project spaces, maker-spaces, and choices for how to interact. Use buildings differently. Ensure appropriate power, connectivity, and technology resources are available.

→ **Use** online curriculum like the Texas Virtual School Network (TXVSN) and open educational resources (OER) to enhance everyday classroom instruction and to facilitate newer models like flipped classrooms, blended learning, 24/7 learning, and alternative schedules.

→ **Enable** student agency by allowing students to take an active role as the lead agent in making learning decisions about the physical and online environment that works best for them.

Outcomes

Short-term: Intentionally designed, positive, flexible learning spaces with technology seamlessly integrated into the design.

Long-term: Flexible, open learning environments that foster creativity and encourage innovation for all students.



Innovative Spotlight: A district in Region 6 has provided large scale maker-spaces in most libraries, which allow students to create and to critically think about their own projects.

Data-Driven Decisions

Choices based on comprehensive information

Vast amounts of structured and unstructured data have transformed the way organizations make decisions. From designing lesson options to determining which students need additional assistance, data-driven decision making can help schools fulfill their missions.

Challenge

While analytics can benefit an organization, the tools and strategies are rendered useless without proper data management and governance. The amount of data can be overwhelming and unruly if not properly managed and used.

Actions

→ **Collect** important and useful data through a student information system (SIS) and other data warehouse systems (like the Texas Student Data System [TSDS]). Use technology to make the data more available in various formats.

→ **Provide** robust, real-time data with relevant actionable information. Online testing and student data warehouses can make information available more efficiently and effectively, allowing teachers more time with students and enabling them to make immediate course corrections.

→ **Create** a strategic plan for data use. Identify the high-quality and relevant information and document how/when it will be used. Provide professional development for teachers and staff to be able to effectively obtain and utilize the data to drive educational decisions.

Outcomes

Short-term: Greater insight for data-driven decisions and identifying areas for improvement.

Long-term: Efficient use of time, resources, and improved instruction to students through informed decisions and increased data quality throughout the organization.



Innovative Spotlight: A district in Region 19 is using their robust data management system to identify struggling students that need extra time with the teacher.



STRATEGIC GOAL 2

Preparing all students for success in the 21st century and ensuring that all students have the technology skills to fully participate and thrive in the world is a top concern of all educators.

Technology provides opportunities to transform education, but only if all students can fully participate. When implementing technology, it is important to consider not only the number and type of technology devices you need but also how to connect them, how to use them, and how to leverage available digital resources to meet learning and teaching goals.

Focus Areas:

1. One-to-One (1:1) Initiative
2. Connectivity
3. Usability

One-to-One (1:1) Initiative

Providing each student and staff with a connected device

Educators are constantly seeking to find new opportunities and methods to improve the student learning experience and to better prepare students for the future. One trend that has become mainstream is providing a one-to-one ratio of device to student and staff.

Challenge

Funding may be a significant hurdle in implementing a 1:1 initiative; moreover, providing the devices is not sufficient to ensure a successful outcome. Without a comprehensive paradigm-shifting implementation strategy, personal devices just become overrated note-taking and testing devices.

Actions

- **Identify** funding to implement a 1:1 initiative. Look for innovative and creative funding sources if traditional budget is not available.
- **Set** student device standards for learning, for access, and for the device itself (i.e., should have a screen size that supports state testing and should have consequences for poor device care).
- **Create** a strategic implementation plan to address the shift in teaching methods. Train teachers and staff appropriately. Monitor and assess frequently and adjust.
- **Involve** stakeholders early and often: school board members, education leaders, teachers, parents, students, and the community.

Outcomes

Short-term: Personalized content tailored for students to enhance technology skills and to foster more creative and innovative work.

Long-term: Fully prepared, independent-thinking, tech-savvy student population ready to tackle any challenge in the future.



Innovative Spotlight: Through grants and private donors, a district in Region 9 has acquired devices that accommodate course work for each student's level. Elementary students are assigned chrome books, junior high students are assigned classroom laptops, and high school students taking collegiate courses are assigned Mac laptops.

Connectivity

Ability to connect and communicate with another computer or the internet.

Preparing students for success requires an environment capable of supporting new ways of teaching/learning and providing universal access to the technology. High-speed broadband access is an essential requirement in transforming digital learning experiences.

Challenge

Students are learning the skills of tomorrow using slow connections, and unreliable networks, or no connectivity at all. Some students have minimal or no access at home and are unable to take advantage of distance learning, digital homework, student-to-teacher communications, flipped classrooms, and other learning opportunities.

Actions

- **Extend** fiber and wi-fi connections that meet or exceed the State Education Technology Directors Association's (SETDA) recommendation of 1Gb internet capacity per 1000 students.
- **Bring** down connectivity costs through competitive bids, group negotiations, and the E-rate program.
- **Find** programs to help provide high-speed connectivity at school and at home for all students, including those that cannot afford high-speed access. Conduct surveys to learn what is needed.

Outcomes

Short-term: A robust, resilient infrastructure, resulting in faster access to applications and increased productivity.

Long-term: Seamless 24/7 access to instructional resources that are affordable and scalable for all students.



Innovative Spotlight: A district in Region 5 developed an Early College High School program that provides students with take-home laptops with built-in cell data service through a grant from TEA to provide students with continuous access to learning resources.



Innovative Spotlight: A district in Region 11 participates in the Sprint 1 Million Project and offers free home internet access to 9-12 grade students who cannot afford broadband.

Usability

Making technology easier to use

Many diverse devices and technologies are available to enhance learning opportunities. Each device and technology may come with unique requirements for understanding how to utilize and get the most from the experience.

Challenge

While having available devices and connectivity are part of the goal, these resources are useless if the student and educators are not able or do not know how to use the technology tools. While some individuals may be tech savvy from their own personal use and interests, not all students and staff have had those same opportunities.

Actions

- **Ensure** students, teachers, and staff know how to use the technology tools and devices. Include instructions and training when devices are issued.
- **Identify** how to get help when needed. Make sure help desk staff, phone numbers, and links to help are readily available.
- **Accommodate** diverse learners and those with special instructional needs.

Outcomes

Short-term: Improved user experience when interacting with a device or technology.

Long-term: All technical barriers removed, allowing staff and students to focus on learning experiences and new ways to design, create, and grow.



Innovative Spotlight: A district in Region 7 provides special needs students with devices to enable them to use technology despite handicapping conditions.

Digital Citizenship



STRATEGIC GOAL 3

As digital resources become more prevalent so does the need for greater digital responsibility.

Each student must become aware of their own ability to make effective choices and the impact that has on the world around them and for themselves in reaching their full potential.

Educators and parents have a joint responsibility in teaching the components of respect, education, and protection in a digital world.

Focus Areas:

1. Program Development
2. Content Development
3. Rights and Responsibilities

Program Development

Formulating, improving, and expanding an ongoing educational plan

Technology is prevalent throughout students' lives, and with those digital resources comes the responsibility to be a good digital citizen in and out of school.

Challenge

Students face challenges when using social media and going online. Students see and hear mixed messages from parents, teachers, and other students about what are acceptable uses of technology. Technology is constantly changing, and educators struggle to know if digital citizen campaigns are effective.

Actions

- **Establish** responsible digital citizen standards and expectations. Share this with all students, staff, and parents.
- **Measure** the outcomes of the program periodically. Evaluate whether the awareness campaign is effective.
- **Update** as technology changes. Keep training and awareness campaigns up to date and relevant.
- **Find** a balance between responsibility and protection (encourage responsible use as opposed to restricting use).

Outcomes

Short-term: Well-defined awareness program that prepares students, staff, and parents for responsible digital citizenship.

Long-term: A knowledgeable society that takes responsibility for digital actions, behaviors, and consequences.



Innovative Spotlight: A district in Region 13 has students and staff develop customized digital citizenship plans for each high school. Many utilize campus student groups, broadcasting announcements and emailing the student body tips on online security and awareness.

Content Development

Determining how to teach digital citizenship

As students master the educational curriculum in the quest to become successful and productive adults, they must also learn the norms of appropriate, responsible behavior online.

Challenge

Most students are eager to dive into technology and social media, and sometimes find out later that mistakes can be very damaging, with a digital footprint that follows them forever. Responsible digital citizenship should be taught hand in hand with the increasing use of technology in the classroom.

Actions

→ **Utilize** existing training and awareness resources. Use online training modules, quizzes, and assessments to engage students.

→ **Incorporate** into curriculum. Allow students to practice responsible digital citizenship in assignments, lessons, and homework.

→ **Start** early and be consistent with a digital citizenship program. Start as early as kindergarten and continue through graduation.

→ **Model** the behavior. Encourage staff, teachers, and parents to lead by example in showcasing responsible digital practices.

Outcomes

Short-term: Positive school culture that supports safe and responsible technology use.

Long-term: Fully prepared, responsible, tech savvy student population ready to tackle any challenge in the future.



Innovative Spotlight: A district in Region 6 trains students on digital citizenship using customizable Open Educational Resources which are modified and enhanced to meet the specific training needs of individuals.

Rights and Responsibilities

Accountability for digital privileges

Students use computers or devices every day in their personal lives or in school. It is essential that students are prepared to communicate and collaborate online in a safe and responsible manner. Students, parents, and staff should be aware of their rights and responsibilities and understand the consequences when rights are abused.

Challenge

Students get mixed messages about what is acceptable, and some students may get no guidance from parents. LEAs are not the sole responsible party for teaching digital rights and responsibilities, but they should be leading the way in establishing a solid foundation.

Actions

→ **Respect** students, staff, and devices. Include guidelines in your digital citizenship program that address respect:

- digital etiquette (standards of conduct)
- digital access (equal participation)
- digital law (responsibility for actions)

→ **Educate** and connect with others. Include guidelines in your digital citizenship program that address education:

- digital literacy (use of technology)
- digital communication (exchange of info)
- digital commerce (buying/selling goods)

→ **Protect** students and staff. Include guidelines in your digital citizenship program that address protection:

- digital rights (universal freedoms)
- digital security (electronic precautions)
- digital health and wellness (physical and emotional welfare)

Outcomes

Short-term: Engaged users operating safely, responsibly, and respectfully online.

Long-term: Digitally responsible society fully participating in the online world in which we live.



Innovative Spotlight: Junior high students in Region 7 create shareable posters and other content to highlight their understanding of digital citizenship.



STRATEGIC GOAL 4

The safety of every student on every campus is a top priority for everyone in Texas. School safety continues to be in the forefront of the discussion and encompasses many issues and strategies to better prepare and protect students and staff.

LEAs are obligated to provide secure and reliable information and services to both the students they serve and the workforce they support. The amount of information created and stored is growing exponentially. As the need to provide access to information grows, the public sector continues to be an attractive target for cybersecurity attacks.

Focus Areas:

1. Cybersecurity
2. Campus Safety
3. Data Management & Governance

Cybersecurity

Securing and protecting student and organization information

LEAs are trusted with the most sensitive and confidential student and staff data and are responsible for ensuring information is not compromised. LEAs must protect data and ensure it is used appropriately.

Challenge

Increasing sophistication of threats, limited availability of security professionals, and the potential catastrophic impact of breaches have kept cybersecurity in the spotlight across the nation. Competition for skilled professionals and limited resources have placed a burden on the public sector's ability to address these issues. LEAs should be strategic in their approach to cybersecurity to compensate for any technological or professional shortfalls.

Actions

→ **Assess** risks based on industry standards and prioritize cybersecurity resources to address the greatest risks, including risks to student data privacy.

→ **Develop** and adhere to a software currency policy that reduces the use of unsupported software and decreases security vulnerabilities. Include standards, policies, and restrictions for open-source or free software.

→ **Leverage** the organization's information security plan and security assessments to obtain executive sponsorship for cybersecurity initiatives and to advocate for cybersecurity focus.

Outcomes

Short-term: Adequate resources to effectively manage the security program and reduced risk and vulnerability of the organization's information systems.

Long-term: Continued protection of private and confidential information, minimized exposure to cyberattacks, and a mature risk-based security program.



Innovative Spotlight: A district in Region 7 provides cybersecurity training to all staff and subsequently tests their understanding through phishing emails. Those that fail to recognize the phishing attempt are required to retake the training.

Campus Safety

Securing the physical environment

School safety remains a top concern for educators. Each LEA has a school safety plan, and technology has a significant role to play in school safety and protection.

Challenge

Individuals cannot function efficiently when their basic needs like safety and security are not met. Safety challenges continue to grow, and unforeseen threats can surface at any time.

Actions

- **Align** your school safety plan with the [Governor's School and Firearm Safety Action Plan](#).
- **Take** advantage of the resources available at the [Texas School Safety Center](#).
- **Use** technology to enhance scalability, reliability, and innovation within safety solutions. Update plans to include availability, maintenance, and guidelines for media storage (like video files, etc.).

Outcomes

Short-term: A robust set of tools that enhances the everyday environment and improves safety.

Long-term: School campuses free of risk or harm that are safe for students and staff.



Innovative Spotlight: A district in Region 1 implemented an Anonymous Incident Management Reporting system that allows students to report inappropriate behavior anonymously via mobile app, web, or phone allowing incidents to be addressed early on prior to escalating.



Innovative Spotlight: A district in Region 10 implemented a district-wide surveillance system to monitor inappropriate behavior and address issues of student and staff safety.

Data Management & Governance

Strategies that put organizations in control of their business data

Data can be one of an organization's most valuable assets, or a major hindrance if not managed appropriately. The exponential increase in data has created both challenges and opportunities for organizations. To benefit from this vast amount of data, organizations need to implement fundamental data management, governance, policies, and best practices.

Challenge

As volumes of data increase, so do the challenges that LEAs face when managing that data. Data may exist within departments, programs, or even under the ownership of individual people, and without clear data retention and storage practices, it can be costly. Often organizations do not have a complete picture of their existing data, making it difficult to develop and adhere to a master data management plan. Organizations will be unable to fully realize the potential of their data without implementing proper data management practices.

Actions

- **Develop** data governance groups to ensure the appropriate individuals are engaged in data-related decisions.
- **Leverage** existing data management frameworks as a resource for developing a mature data management program, where all data is classified based on risk. Include protections for ensuring student data privacy.
- **Appoint** an individual dedicated to managing and maintaining the organization's data.

Outcomes

Short-term: Better understanding of the type, location, volume, and ownership of data retained by the agency.

Long-term: Improved business decisions, reduced costs, and the ability to automate processes.



Innovative Spotlight: A district in Region 11 was awarded the Trusted Learning Environment Seal and participated in the development of the Data Privacy Agreement approved by the Texas K-12 CTO Council.



STRATEGIC GOAL 5

With so many challenges facing organizations and so many priorities competing for resources, educators need to find ways to do more with less and to work smarter, not harder.

Given the existing budget and resource constraints, LEAs must prioritize their goals, have a clear, unified vision for achieving those goals, and look for collaborative, cost-effective solutions. Having all stakeholders on board is critical to accomplishing the most with resources available.

Focus Areas:

1. Strategic Planning
2. Shared Services
3. State Collaboration

Strategic Planning

Setting priorities and ensuring stakeholders are working towards common goals

Effective use of technology requires collaboration between teams to ensure that the technology is solving critical issues. Technology cannot be effective if implemented in a vacuum. Groups must come together to plan how technology will be implemented to enhance the curriculum and improve the learning experience.

Challenge

LEAs have many priorities that compete for resources. Organizations may have multiple plans i.e., strategic plans, curriculum plans, campus improvement plans, and technology plans. This can lead to silos and lack of ownership (i.e., curriculum staff may not take ownership of technology plan). Leadership groups should work together to ensure that all departments have ownership in a clear, unified vision.

Actions

→ **Involve** key stakeholders, including school boards, education leaders, administrators, teachers, students, and parents. Consider all aspects in one plan including technology, curriculum, instruction, and professional development.

→ **Plan** effectively by having a clear vision and incorporating technology in appropriate areas. Ensure stakeholders have ownership. Incorporate compliance requirements in the plan with budget and staffing needs.

→ **Evaluate** effectiveness and make improvements as needed. Measure often to see if goals are being met.

Outcomes

Short-term: A clear set of priorities and actions to direct resources and ensure that all stakeholders are working towards common goals.

Long-term: Proactive, efficient organization working together to achieve vision and optimize costs.



Innovative Spotlight: Multiple districts have created Technology Committees comprised of students, teachers, parents, technology coordinators, and administrative staff. The committees discuss best practices for integrating technology into the classroom, address technology needs and concerns, and provide guidance on technology

Shared Services

Expanding IT services within and among organizations according to similar needs

Shared services allow for agencies to focus limited resources on IT applications and supported business functions. This allows for improved operational efficiency, optimized delivery services, cost savings, and harmonized operations.

Challenge

Implementing a shared services model can be a difficult task. LEAs continue to face challenges around operational governance and staffing for system maintenance. However, with appropriate governance and engagement, organizations can maintain a high level of visibility and control over their service delivery.

Actions

→ **Reach** out to education service centers and other organizations to leverage existing shared services and explore ideas for new models to create additional cost savings.

→ **Develop** shared service models based on business values to create a more consistent IT landscape.

→ **Obtain** executive support for IT governance needed to continually develop and deploy shared services solutions.

Outcomes

Short-term: Cost savings and a focus on improved customer relations.

Long-term: Better usage of IT as a service, enabling IT leaders to focus on mission rather than directly managing administrative services.



Innovative Spotlight: Twelve ESCs formed a consortium to hire a shared Information Security Officer (ISO). The new position serves the security interests of the twelve ESC regions, and the costs are shared.



Innovative Spotlight: In Region 19, rural districts are sharing resources (human, fiscal, technology, etc.) to deliver training, host classes, and offer extended learning opportunities for school district staff, students, and community members for both credit and non-credit purposes.

State Collaboration

Working together with State Leadership to achieve success

LEAs and state education leadership have the same goal for education in Texas – that every child in Texas will be an independent thinker and graduate prepared for success in college, a career, or the military, and will become an engaged, productive citizen. Communication and collaboration between LEAs and state leadership is crucial to establishing a technology direction and vision and supporting one another in reaching these goals.

Challenge

LEAs may not have a clear understanding of the vision or goals of their oversight agencies and cannot plan appropriately if the vision is unclear. LEAs may not be aware of resources that are available to tackle technology challenges that all LEAs face.

Actions

→ **Strengthen** relationships with state leadership. Keep conversations flowing in both directions. Take opportunities to better understand and develop technology direction and vision.

→ **Participate** in advisory committees for technology, security, etc. These groups present an opportunity to provide input, share concerns and take ownership in the outcomes.

→ **Learn** from others' successes. Share successful, innovative projects with other LEAs. Stay abreast of the resources available from the state that may enhance or benefit LEA projects.

Outcomes

Short-term: Work more effectively with others towards a common goal.

Long-term: Better results, greater innovation, and higher productivity.



Innovative Spotlight: The Data Security Advisory Committee (DSAC) provides guidance to Texas education communities, maximizing collaboration and communication regarding information security issues and resources. The DSAC is comprised of representatives from school districts, ESCs, TEA, and the private sector.



STRATEGIC GOAL 6

LEAs are facing the challenge of modernizing legacy hardware and software, replacing aging systems to move toward a more collaborative, agile, and interoperable education system.

As LEAs transition from traditional practices to innovative solutions, they need to evaluate current and ongoing investments in legacy systems and hardware while considering replacement with more efficient and scalable options.

As more and more learning opportunities rely on technology to enhance educational experiences, a reliable infrastructure is critical for LEAs to obtain their educational goals. Determining what equipment and support is needed, by whom, and how to get there may not be easy, but it is essential to the future success of educational IT.

Focus Areas:

1. Technical Support
2. Legacy Modernization
3. Continuity of Operations

Technology Support

Assistance and services for technology users

Technology can be one of a LEA's most valuable assets, but it presents many challenges as well. Technology continues to expand and become embedded in the curriculum, communications, delivery methods, and learning environments. Being able to support the technology and keep it current and functioning is critical to success. To benefit from this vast amount of pervasive technology, LEAs need a well-organized and well-supported technology support structure.

Challenge

LEAs can underestimate their tech support needs and end up wasting valuable education time. Technology devices require constant updates and maintenance. Outdated devices and software can become a serious risk.

Actions

- **Develop** proportional tech support teams to address the inevitable issues that arise with networks, laptops, and devices. Target a goal of a 1-to-350 ratio of tech support staff to devices. Implement a help desk to standardize intake, track workload, and automate functions where appropriate.
- **Redesign** learning spaces to keep power and connectivity readily available and minimize downtime.
- **Invest** in professional development for technology support staff to stay current with expertise, trends, and risks. Use online resources in addition to traditional training. Target a minimum of at least 80 hours a year per staff member on technical training.
- **Address** technology staff salaries to be competitive with industry standards to be able to hire and retain qualified staff

Outcomes

Short-term: Better student and teacher interaction and experience with technology, with more time focused on learning.

Long-term: A qualified, competent workforce to manage the technical complexities for increased organizational effectiveness.

Legacy Modernization

Addressing outdated technology, computer systems, or applications

A legacy system operates with old, obsolete, insecure, or inefficient hardware or software. The world is moving towards the adoption of new technologies at a fast pace, driven by promises of agility and operational efficiency. As LEAs transition from old IT infrastructure, legacy modernization remains a challenge that requires prioritizing operational and security risks.

Challenge

Legacy systems are more difficult and expensive to maintain and carry more security risks. Many core functions and classrooms rely on them, but migrating functions to updated, secure systems can be costly. Even with a statewide modernization effort underway, it will continue to take prioritization, planning, time, and sufficient resources to resolve these issues.

Actions

→ **Evaluate** software-as-a-service (SaaS) and commercial-off-the-shelf (COTS) solutions before building custom applications.

→ **Utilize** an application portfolio management solution to accurately inventory applications and the resources required to provide operational support of those applications over their lifetimes.

→ **Develop** standards for refresh and replacement, and create guidelines to determine the appropriate course of action to take regarding outdated applications and devices.

Outcomes

Short-term: Repeatable, adaptable methodologies to standardize and prioritize legacy modernization and reduced risk of system and data breaches.

Long-term: A proactive approach for managing IT, shifting focus to emerging technologies, reduced future costs, improved security, and better application efficiency.



Innovative Spotlight: A district in Region 5 moved to a virtualized server environment that is redundant across several servers and backed up both onsite and off.

Continuity of Operations

Preparing for continued operations during and after an emergency

LEAs should prepare to restore critical instructional and administrative resources in the face of a disaster or the disruption of services. Business continuity planning is crucial to the recovery of technology assets and resuming mission-critical functions.

Challenge

While there is no regulation or mandate requiring a LEA to have a business continuity plan, best practice and common sense indicate that a plan is critical to recovery. Existing plans are not periodically tested and sometimes neglect to incorporate interdependent relationships regarding IT infrastructure (i.e., with external vendors, cloud, or SaaS). With the threat of natural disasters always looming, business operations in Texas schools remain vulnerable to disruption.

Actions

→ **Test** and improve business continuity plans routinely to optimize effectiveness, including an annual exercise of continuity plans.

→ **Consider** cloud infrastructure as a mechanism for business continuity and disaster recovery from diverse locations.

→ **Formalize** alternate worksite policies to improve the continuity of operations, ensuring organizations enable appropriate controls for telework options.

Outcomes

Short-term: The identification and prioritization of the critical personnel, facilities, and resources required to continue delivery of necessary functions after an emergency.

Long-term: A holistic approach to incident management that includes collaboration and standard command and control management structures.



Innovative Spotlight: A district in Region 16 implemented a remote DR facility where development, test, and training environments are maintained and can serve as a failover site to ensure operational ability.

Looking to the Future—Cost-Effective and Collaborative Solutions

As we look towards the future, it is imperative to look for creative solutions and take advantage of opportunities for greater efficiency and effectiveness. The following are a few trends that should be considered for optimizing resources and increasing the value of digital assets.

Cost Optimization—Seek out and negotiate education discounts on hardware and software. Many hardware and software vendors offer special discounts for qualifying education institutions. Use bulk discount programs and state cooperative contracts to leverage statewide purchasing power.

Collaborative Solutions—Take advantage of software-as-a-service (SaaS) and cloud services to minimize implementation, maintenance, and support costs. SaaS is a software model where a third-party provider hosts applications for a license subscription fee and makes them available over the Internet. Cloud services offer alternatives to traditional IT delivery models. Cloud-computing—a model that enables on-demand network access to resources—has changed how business is done. If cloud services are implemented carefully and appropriately, they can ease the burden of aging infrastructure and provide flexible, lower-cost IT service delivery.

Interoperability—Choose software products and learning systems that are flexible when it comes to standards. They should support the prevalent standards of the day and the platform itself should not be rigid or restrictive in only supporting one standard. New standards emerge often, and it can be costly to be stuck with a single standard that may not remain the prevalent standard. Choose software that has the flexibility and agility to effortlessly incorporate new standards that emerge.

Interoperability is the ability of computer systems to connect and communicate with one another seamlessly despite the platform or way it was implemented, allowing easy integration and sharing of data in a format that is understandable to all.

The IMS Global Learning Consortium is a well-known non-profit collaborative organization tasked with advancing edtech interoperability, innovation, and learning impact. Several education technology interoperability standards can be found on their website: <https://www.imsglobal.org/>.

Innovative Spotlights

This section highlights innovative projects LEAs have implemented in alignment with these strategies:

-  A district in region 18 utilized a Technology Lending Grant to purchase devices and MiFi (mobile Wi-Fi) hotspots to create more equitable access.
-  Teachers in Region 1 leverage Google Chromebook and Google Classroom to provide immediate feedback to students. Teachers then adjust the curriculum and personalize the learning for the high and low performers based on academic achievement. All K–12 curriculum is digital and accessible for all teachers which facilitates cross alignments between the course, grade, and campus level throughout the district.
-  A district in Region 3 created a Teacher Technology Team (T3) to help foster collaborative learning with the staff.
-  A district in Region 12 created a STEAM (science, technology, engineering, arts, math) garage to empower students learning in a flexible environment and allowing students to communicate, collaborate, think critically, and engage creatively. The STEAM Garage has a video production studio, computers, 3D printers, tablet devices, robotics, and electronics.
-  A district in Region 8 provides 1:1 iPads. Junior high and high school students take their devices home while elementary students have technology classroom carts.
-  A district in Region 17 created a technology committee consisting of two parents, administration, a teacher from each of the levels, and technology representative.
-  A district in Region 16 implemented a project where students, in teams, collaborate on chapters and write their own textbook using modern technology. The students, over a period of weeks, present the chapters to the larger class and obtain feedback on their work. The students then return to review, edit, and revise their work for the final product.
-  A district in Region 19 provides blended learning for both teachers and students, which has been especially beneficial to geographically distant (rural) campuses. Video meetings are used to provide modeling, training, and coaching with teachers.
-  A district in Region 2 implemented the AVID (Advancement Via Individual Determination) program to encourage college enrollment. The program places special emphasis on the development of writing, critical thinking, teamwork, organization, and reading skills.
-  A district in Region 15 provides training on project-based learning, use of genius hour programs, and design thinking concepts, as well as multi-faceted technology-related professional development to facilitate student-centered, personalized learning in the classroom.
-  A district in Region 4 is changing the learning environment to meet the needs of students by providing flexible furniture and centers that offer learning resources and teacher training, encouraging flexible approaches to the teaching structure.

State and Federal Supports

This section highlights state and federal programs and services available to assist LEAs in striving to implement the technology strategic goals listed in this plan.

E-Rate program, federally funded program to provide schools and libraries affordable access to advanced telecommunications services. This program provides discounts ranging from 20 to 90 percent on telecommunications services, internet access, internal connections, and basic maintenance of internal connections to eligible schools and libraries.

https://tea.texas.gov/Academics/Learning_Support_and_Programs/Technology_Planning/E-rate/

Classroom Connectivity Initiative, a partnership between the Texas Education Agency, regional education service centers and the non-profit EducationSuperHighway. The initiative is designed to increase access to affordable, high-speed broadband and Wi-Fi access for K–12 public schools in Texas. https://tea.texas.gov/Classroom_Connectivity

Department of Information Resources (DIR) Services <https://www.dir.texas.gov/>

- **DIR Shared Technology Services**, which includes data center services, telecom services, purchasing services, and online payment services.
- **Modernization and Development Framework**. DIR provides a modernization strategy with supporting guide (LM Guide), checklist, and application development decision framework (ADDF).
- **Statewide Cybersecurity and Data Coordination**. DIR provides collaboration across state government entities supporting advancement of cybersecurity and data services. Cybersecurity services include the sharing of threat intelligence and managed security services including security device management, incident response services, and assessment services.
- **Bulk Purchase Program** for desktops, laptops, tablets, software, and other IT equipment. DIR coordinates computer bulk purchases to leverage statewide purchasing power.

Texas Gateway and the Texas CTE Resource provide engaging, TEKS-aligned resources for teachers to use with students as part of classroom instruction, intervention, acceleration, or additional practice. <https://www.texasgateway.org> <https://www.txcte.org/>

Texas Virtual School Network (TXVSN) provides Texas students and schools with equitable access to quality online courses and instructors. It is a valuable resource for interactive, collaborative, instructor-led online courses taught by state-certified and appropriately credentialed teachers trained in effective online instruction. <http://www.txvsn.org/>

Technology and Instruction Materials Allotment (IMA) is an allocation of state funds for the purchase of instructional materials, technological equipment, and technology-related services. Each district and open-enrollment charter school receives an allotment each biennium.

TEA Grants like the Technology Lending grant. The purpose of the Technology Lending grant is to provide LEAs the funds to purchase technology devices that are loaned to students for access to digital instructional materials off campus. The grant provides personal student learning devices and internet access for students who would not otherwise have access to digital instructional materials off campus.

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Appendix E. Call to Action

This chart shows the stakeholder groups whose involvement is needed to carry out each recommendation in the *Long-Range Plan for Public Education*.

	State Legislature	TEA	SBOE	ESCs	Districts	Trustees and Governing Boards	Educators	School Counselors	EPPs	SBEC	Higher Education	THECB	Workforce Boards	TWC	Community Organizations	Businesses	Students	Families	Professional Associations
Equity and Access																			
1. Conduct ongoing research and identification of inequities to guide effective implementation of policy decisions/systems change.		✓									✓	✓							
2. Utilize the State Board of Education–adopted 2018–2023 Long-Range Plan for Technology to guide the planning and implementation of local district policy. (See Appendix D of this plan.)		✓			✓														
Work to ensure schools have access to tools that allow teachers to more effectively differentiate instruction where effective use of those tools by teachers has been proven to raise student outcomes.	✓	✓																	
3. Regularly identify inequities, update policies, and distribute funding and resources aligned with improving student outcomes, based on quality peer-reviewed research and the experience of local educators, in all schools and with all demographic groups.	✓					✓													
4. Provide a greater array of no-cost or low-cost resources to support high-quality, aligned curriculum and instruction for all educators.	✓	✓																	

	State Legislature	TEA	SBOE	ESCs	Districts	Trustees and Governing Boards	Educators	School Counselors	EPPs	SBEC	Higher Education	THECB	Workforce Boards	TWC	Community Organizations	Businesses	Students	Families	Professional Associations
5. Advance policies to increase educator and principal effectiveness through enhancing compensation systems , particularly compensation that encourages effective teachers to teach in schools not meeting state accountability goals. Enhancements should be meaningful, differentiated, sustainable, and developed in concert with local stakeholders.	✓					✓													
Student Engagement and Empowerment																			
1. Create or utilize systems or frameworks such as the Texas Model for Comprehensive School Counseling Programs to allow students to discover passions and interests for college and career pathways from elementary school through graduation , including ongoing and systemic career advising using labor market and career information about a wide range of global occupations and ways to achieve them.					✓			✓					✓						
2. Financially incentivize an integrated and data-driven academic and nonacademic multitiered system of support (MTSS) on every campus to identify and connect all students with appropriate support services , including supports for behavioral health, mental health, and intrapersonal and interpersonal effectiveness (see the Texas Model for Comprehensive School Counseling Programs on pages 16–17).	✓	✓																	

	State Legislature	TEA	SBOE	ESCs	Districts	Trustees and Governing Boards	Educators	School Counselors	EPPs	SBEC	Higher Education	THECB	Workforce Boards	TWC	Community Organizations	Businesses	Students	Families	Professional Associations
Financially incentivize an integrated workflow management system to enable the identification of students needing support, increase the effectiveness of school counselors, and monitor and evaluate the effectiveness of support services.	✓	✓																	
3. Ensure that state assessment systems are more integrated, less disruptive, and more beneficial to students and teachers. The assessment systems should also be highly inclusive of campus-level practitioners in their design. State assessment and accountability systems should seek to focus on multiple measures of assessing and reporting student performance outcomes (e.g., State of Texas Assessments of Academic Readiness [STAAR], career and technical education [CTE] certifications, portfolios, capstone projects, and community service projects).	✓	✓																	
4. Expand high-quality early learning opportunities for children, including formula-funded full-day prekindergarten, that further the goal of closing any gaps in educational proficiency by third grade	✓																		
5. Actively assist teachers working with businesses and industry to gain hands-on experiences that can be incorporated into the classroom.				✓	✓								✓		✓	✓			
6. Provide multiple enrichment and leadership opportunities (e.g., clubs, organizations, teams, projects, internships) in addition to athletics, fine arts, and student council.					✓														

	State Legislature	TEA	SBOE	ESCs	Districts	Trustees and Governing Boards	Educators	School Counselors	EPPs	SBEC	Higher Education	THECB	Workforce Boards	TWC	Community Organizations	Businesses	Students	Families	Professional Associations
7. Strengthen the alignment between the Texas Essential Knowledge and Skills (TEKS) and the College and Career Readiness Standards (CCRS) .		✓	✓									✓		✓					
8. Ensure students take ownership of their educational journeys and personal and interpersonal effectiveness by pursuing success through active engagement with education and by taking advantage of opportunities to access business and community resources.							✓	✓									✓	✓	
Family Engagement and Empowerment																			
1. Create a division of family engagement and empowerment that is a resource for families. Through this division, Create a family support call center and online portal to be managed by an education service center to assist families in navigating the public school system. Create an advisory council on family engagement and empowerment to inform all state and local policymakers on best practices on family and school partnerships and develop objective metrics that could be included in a state accountability system.		✓																	
2. Incorporate objective family engagement and empowerment metrics that are incentivized and rewarded in the state accountability system.	✓	✓																	

	State Legislature	TEA	SBOE	ESCs	Districts	Trustees and Governing Boards	Educators	School Counselors	EPPs	SBEC	Higher Education	THECB	Workforce Boards	TWC	Community Organizations	Businesses	Students	Families	Professional Associations
3. Build and foster relationships, address differences, and support advocacy in partnership with families.					✓						✓				✓	✓		✓	
Educator Preparation, Recruitment, and Retention																			
1. Collaborate and partner with school districts to align teaching methods and strategies and develop clinical training and practicum experiences to better prepare educators to meet student needs and improve student outcomes.					✓				✓										
2. Include educator and education leadership training on trauma-informed practices, cultural responsiveness, the incorporation of social and personal effectiveness practices, the creation of a positive school culture and climate, the education of highly mobile students, positive discipline practices, mental and behavioral health interventions, parental involvement strategies, and data analysis and data-informed decision-making.									✓										
3. Increase overall teacher quality by improving the standards and rigor associated with educator preparation and the state's EPPs.	✓	✓					✓		✓	✓									
4. Have meaningful performance-based accountability processes, standards, and measurable outcomes for educator preparation programs that ensure new/entry-level educators are classroom-/school-ready.		✓	✓						✓	✓									

	State Legislature	TEA	SBOE	ESCs	Districts	Trustees and Governing Boards	Educators	School Counselors	EPPs	SBEC	Higher Education	THECB	Workforce Boards	TWC	Community Organizations	Businesses	Students	Families	Professional Associations
5. Provide timely guidance, training, mentoring, and support for new, early career, and veteran educators.				✓	✓										✓				✓
6. Establish and sustain competitive salaries and career paths for educators through innovative compensation plans, induction programs, professional development, mentoring, and administration.	✓				✓														
7. Allows and support compensating and incentivizing educators who teach in hard-to-staff subject areas or low-performing, urban, rural, or challenging schools.	✓																		
8. Provide incentives and support for teachers to engage in internships, externships, leadership opportunities, and ongoing professional development as part of continuing education.	✓	✓			✓											✓			✓
9. Provide greater flexibility in a coordinated fashion to state higher education institutions regarding the 120-hour degree plan for teacher education programs while maintaining the rigor and integrity of these programs.	✓										✓	✓							

Abbreviations

TEA — Texas Education Agency
SBOE — State Board of Education

ESCs — Education Service Centers
EPPs — Educator Preparation Programs

SBEC — State Board for Educator Certification
TWC — Texas Workforce Commission