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A new paradigm for decision making:

A district leader's guide to standards-based technology adoption and integration

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Overview

The American education system is in the throes of significant technological, political and pedagogical shifts. Until recently, however, instructional technology integration practices have followed traditional routes. The increasing focus on alternative pedagogies and personalized instruction, as well as an expanding sea of digital learning solutions, means that previous models of technology adoption and integration now present significant challenges. With so many new tools and platforms, schools and districts need to know that these solutions will not only benefit students and teachers, but that they will also work together to support the curriculum and minimize disruption.

The IMS Global Learning Consortium (IMS Global) and the International Society for Technology in Education (ISTE) each publish a suite of standards that can be used as innovative frameworks for district technology adoption and integration practices. The IMS Global Interoperability Standards provide industry guidelines for digital apps, tools and platforms that allow for seamless integration and communication with each other, and the ISTE Standards guide the integration and application of these tools within the teaching and learning process. Used together, these standards can help districts define their needs for digital solutions and create a comprehensive approach to technology adoption and integration.

Here's how you can use the IMS Global Interoperability Standards and ISTE Standards comprehensive approaches for technology integration to craft a robust approach for selecting, adopting and integrating digital learning solutions that create a complete digital learning ecosystem from both curriculum and system perspectives.

A New Paradigm for Technology Integration

Too often, districts are saddled with the burden of supporting different hardware and software models across schools, and digital solutions are often adopted with little or no coordination between staff, learning and system needs. Put simply, ad hoc models are no longer effective or sustainable. With turnover in district leadership, constantly shifting political agendas, new mandates and evolving instructional expectations, schools and districts often find it difficult to develop a strategic approach to technology integration that is comprehensive and sustainable. Used together, the ISTE Standards and IMS Global Interoperability Standards mitigate key problems around technology integration at the school and district level. Schools and districts need new strategies that allow educators and students to maximize the use of digital tools and enable districts to better support robust applications of technology-powered pedagogy.

To achieve this task, districts need to work toward creating a fully integrated digital learning ecosystem. A digital learning ecosystem is a framework that enables digital tools, platforms and content to fit together and:

- Facilitates personalized instruction
- Reduces administrative burdens around technology
- Maximizes quality student-instructor interactions
- Reduces overall costs associated with technology implementation and maintenance
- Supports rapid response to individual student needs
- Expands learning beyond the classroom

To create such an ecosystem, schools need a strategic approach to selecting and integrating digital tools and content that meet infrastructure, pedagogical and user needs. Together, the IMS Global and ISTE Standards provide this guidance.

Districts can use the IMS Global Interoperability Standards to select and integrate digital applications, tool and platforms that:

- Support centralized access to digital content

- Facilitate the integration and exchange of digital content from multiple providers
- Simplify the exchange of data between provider solutions and district/school systems

In turn, the ISTE Standards can be used to select and integrate digital learning resources that:

- Are aligned with teaching and learning goals
- Support best practices for digital learning
- Facilitate effective, technology-powered pedagogy

Recommendations

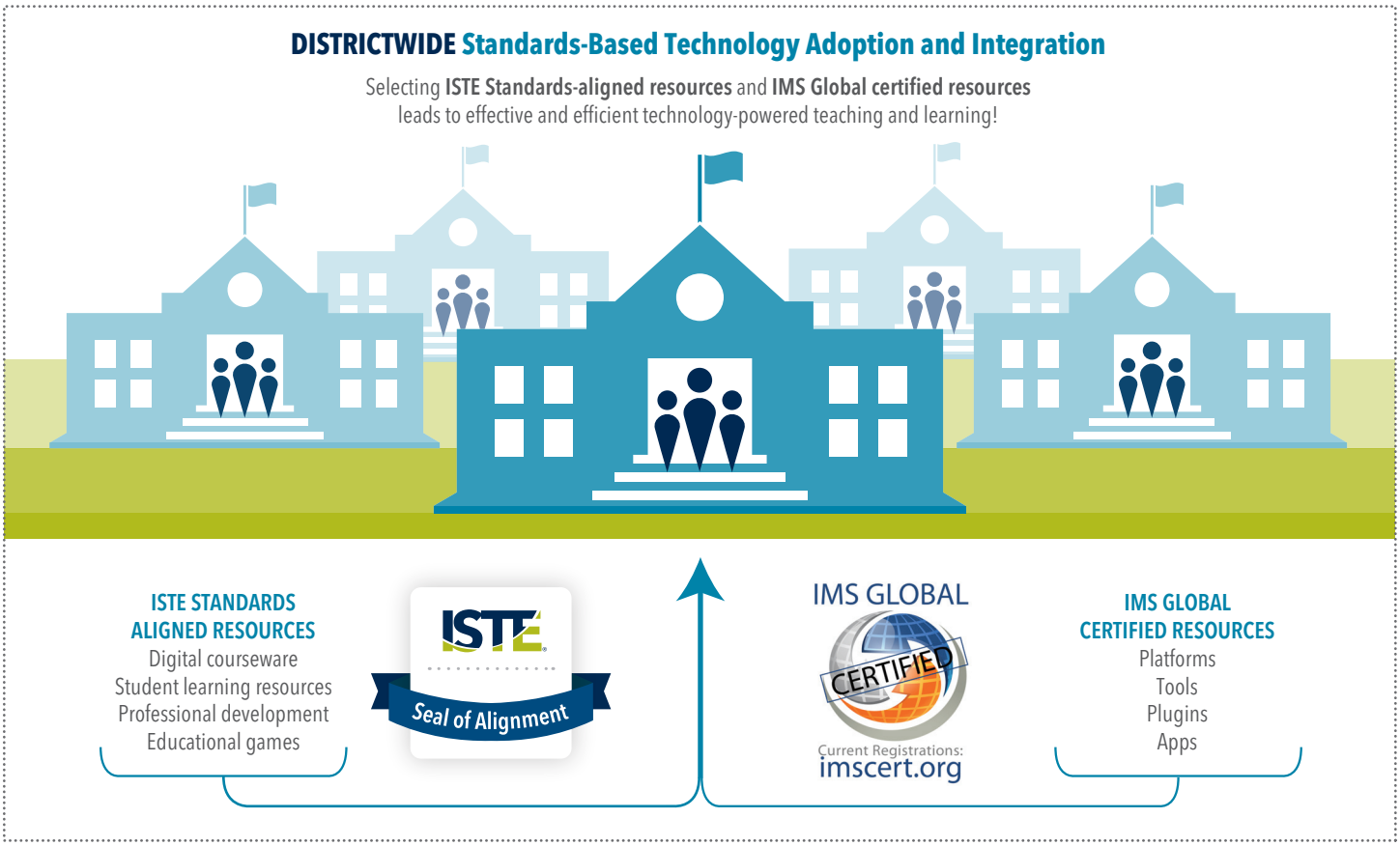
For districts applying this standards-based approach to technology adoption and integration, there are three major recommendations:

1. Create a strategic vision that incorporates interoperability and pedagogical standards.

Using the IMS Global Interoperability Standards and ISTE Standards as the guiding framework, districts can create a vision for technology that addresses critical infrastructure and pedagogical mandates, visions and philosophies. With the ISTE Standards, districts can define technology selection, integration and application based on pedagogical best practices and can guide the adoption of digital resources based on global technology learning standards. Similarly, when a district adopts an open interoperable approach to technology integration based on the IMS Global Interoperability Standards, it enables a technology ecosystem that is nimble and sustainable regardless of changes or updates.

2. Support districtwide strategy and grade-band technology learning goals with solutions that have gone through the ISTE Seal of Alignment and IMS Global Conformance Certification processes.

Districts use these interoperable solutions to create a user-friendly and sustainable learning environment that facilitates the effective use of digital tools and resources. In addition, by mapping the curriculum across grade-bands and using the ISTE Standards to identify technology teaching and learning goals, districts can better leverage their use of digital tools and learning resources with ISTE Standards-aligned resources for meeting specific technology learning goals. Similarly, when districts require IMS Global conformance certification of their technology vendors to IMS Global Interoperability Standards, they are laying the foundation to support a fully integrated digital learning environment.



3. Use technology standards to facilitate cross-departmental communication and decision-making.

A robust, integrated and comprehensive digital learning ecosystem is not possible without cooperation from both technology and curriculum departments. The IMS Global Interoperability Standards and ISTE Standards can serve as a common language to facilitate communication between curriculum and IT departments and define critical technology adoption needs and decisions. Using IMS Global Interoperability Standards and ISTE Standards, personnel from both IT and curriculum departments can clearly identify and communicate technology system and instructional needs.

Case Example

IIn Pickens County School District in upstate South Carolina, the IMS Global Interoperability Standards and ISTE Standards are beginning to have a significant impact for both teachers and students. This mid-size, rural school district implemented a BYOD (bring your own device) strategy two years ago and rolled out its first 1:1 initiative in high school in fall 2015. District leaders wanted technology to maximize and support their teaching and learning goals.

Because these goals were based on the ISTE Standards for Students, the district placed a strong emphasis on skills such as using digital media and environments to support communication, collaboration and individualized learning both in and out of the classroom (ISTE, 2007). As a result, district IT and curriculum departments worked together to select digital tools and materials that supported the ISTE Standards in the classroom and that were easily maintained at the district level. In addition, the district adopted a single sign on (SSO) solution that was IMS Conformance Certified and facilitated seamless access to, and effective maintenance of, digital materials and resources adopted at the district level.

The district also adopted an IMS-compliant learning management system that supports both the Learning Tools Interoperability® (LTI®) and Thin Common Cartridge™ standards. The district used LTI links and cartridges in its learning management system to increase teachers' easy access to high-quality digital content from various publishers. Now teachers are able to select and integrate standards-based digital resources as they create curricular units applying these tools in ways that address the learning and teaching goals embedded in the ISTE Standards.

An interoperable digital ecosystem means teachers have access to data from many sources, providing better insight into learners' needs. With this approach, the district relied on a systematic vision, incorporating both IMS Global Interoperability Standards and ISTE Standards to support student mastery of academic content standards within a user-friendly digital learning ecosystem full of robust digital learning tools and resources.

IMS Global Learning Consortium Standards

The IMS Global Learning Consortium, the world leader in EdTech interoperability and impact, is leading the development of Interoperability Standards that enable the integration and exchange of digital content and data across systems. The IMS standards provide a framework for establishing a technology infrastructure that is compatible, integrated and interchangeable across the teaching and learning environment. Learn more at **imsglobal.org**

The IMS Global Interoperability Standards developed out of the need to support districts, schools and states as they faced growing challenges in transitioning to digital, such as the selection and integration of tools and content from a wide variety of sources, the need to provide a user-friendly experience for instructional staff and students using digital tools and content, and the desire to support the move toward personalized learning through the integration and exchange of digital content and data. Using the IMS standards such as Caliper Analytics™, Thin Common Cartridge®, Learning Tools Interoperability® (LTI®), and OneRoster™ can streamline the access and integration of content in district systems and provide educators, administrators and students with a user-friendly infrastructure that facilitates the effective use of digital solutions for teaching and learning.

IMS Conformance Certification

Products that pass interoperability testing are designated with the IMS Certification logo shown to the right, and a unique registration number available at imscert.org makes it easy for districts to confirm certification. Working with suppliers that have achieved IMS Certification can significantly reduce pain points associated with evolving personalized learning and lead to greater interoperability with provider systems, while saving districts and schools huge amounts of time and money.

Conclusion

By developing a standards-based digital learning ecosystem using the IMS Global Interoperability Standards and ISTE Standards as the primary decision-making framework, districts will have a learning ecosystem that is both comprehensive and sustainable. By adopting the IMS Global Interoperability Standards, districts can commit to a digital platform, tools and apps that are nimble, coordinated and supports the robust application of technology to effectively and efficiently personalize learning. Similarly, by adopting the ISTE Standards and using standard-aligned resources, districts are able to take full advantage of an interoperable system and ensure that goals for learning with technology are met. With this blended approach, districts facilitate critical communication between curriculum and IT departments, support a comprehensive vision for technology adoption, and ensure that integration decisions are informed, strategic and in support of a comprehensive and sustainable digital learning ecosystem.

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International Society for Technology in Education (ISTE®) & ISTE Standards

The International Society for Technology in Education (ISTE®) is a nonprofit organization serving educators and education leaders committed to empowering connected learners in a connected world. ISTE has produced a suite of pedagogical standards for teaching, learning and leading in the digital age that are widely recognized and adopted worldwide. The ISTE Standards provide a guiding framework for understanding what an effective integration of digital learning solutions looks like in ways that are pedagogically relevant. Learn more at iste.org.

The ISTE Standards were created in response to the realization that technology was quickly becoming a ubiquitous tool for teaching, learning and living in the 20th century. With the rapid changes in education, technology and pedagogy, ISTE recognized the key role technology would increasingly play in the future success of students. (ISTE, 2000a). First published in 1998, the original ISTE Standards for Students reflected early goals for technology in education and focused on foundational technology skills, basic operations and fundamental concepts. However, with the rapidly changing landscape, ISTE revised the standards in 2007, and focused on the application of technology as an important tool for facilitating learning, promoting higher order thinking skills, and supporting personalized learning. With the suite of ISTE Standards including standards for students, administrators, teachers and technology coaches, the ISTE Standards provide a comprehensive vision for technology integration from a pedagogical perspective and clear guidelines of the skills, knowledge and approaches each stakeholder needs to support student success in the digital age.

ISTE Seal of Alignment

Resources that have undergone the rigorous review process are awarded the ISTE Seal of Alignment based on their alignment to the ISTE Standards. The ISTE Seal of Alignment serves as a beacon for educators and leaders looking for high-quality digital resources. By adopting standard-aligned resources, leaders and educators will be able to strategically select and implement digital solutions that will help meet their specific technology teaching and learning goals.