

LTI Advantage

Scenario

Like many of her colleagues at similar institutions, Springview University CIO Sandra Fuller had often been frustrated by the disconnect between promises about IT interoperability and reality. In Springview's experience, getting components of the institution's IT infrastructure to "play nice" with each other never seemed to work as seamlessly as vendors promised.

In a meeting with faculty members and instructional designers in early 2020, though, Fuller was suddenly struck by the realization that, in fact, efficient interoperability was actually making a significant difference in Springview's new digital learning ecosystem. In contrast to experiences even as late as 2018, faculty and designers were now able to readily and effectively blend multiple learning tools from different vendors into their courses. Faculty members had high praise for the ease and efficiency of the system's tools for integrating applications that enabled them to customize their courses. A usually cantankerous chemist reported, for example, that he had been able to integrate interactive experiments from multiple sources into his courses "with just a few clicks," and he described the new tools as "elegant."

The difference, Fuller saw, could be ascribed to Springview's early adoption of Learning Tools Interoperability (LTI) and its recent upgrade, LTI Advantage. From her own due diligence, Fuller knew that LTI Advantage embodied a rare but powerful collaboration among competing vendors to develop common standards and certifications. At Springview, that translated to welcome streamlining of the technical side of how faculty could update courses, eliminating what had been time-consuming custom programming for each change a faculty member wanted and, often, migrating the work of customizing a course from IT staff to the faculty member. Another plus was that standards built into LTI helped protect data security and confirm tool authenticity.

In practice, LTI was creating refreshing seamlessness between learning tools that Springview faculty used and its learning management system. Faculty were particularly enthusiastic about their new tools for administrative tasks like assigning homework, recording grades, and managing classroom logistics. While those improvements constituted one decided plus, Fuller also saw that deeper improvements were under way. As she would later tell Springview's provost, LTI and LTI Advantage were starting to help open the door for important improvements in the way faculty were teaching. In essence, these new tools were enriching pedagogy at Springview in substantive ways.

1 What is it?

LTI Advantage is the next generation of the Learning Tools Interoperability (LTI) standard, which was [designed to enable plug-and-play integration of educational applications and tools within an institution's digital learning environment](#). Currently implemented in more than 70 learning platforms and hundreds of learning products, LTI securely connects an institution's LMS with external learning apps. LTI Advantage comprises the core LTI (v1.3) and a package of three [extensions](#) that enable faster setup and configuration, improved user functionalities, and more advanced security to protect student data. LTI enables the platform to confirm a tool's credentials and exchange data in a teaching and learning context. Learning environments, tools, and digital content that implement LTI enable more intuitive ways to add course content and greater creativity and agility in learning design, in a more secure teaching and learning ecosystem. LTI Advantage is free and open to use by all.

2 How does it work?

Leveraging the latest LTI standard as its foundation, LTI Advantage adds functionality that enables deeper and more targeted linking of learning objects from anywhere in the learning environment as well as the flexible and secure conveyance of user and assessment data across all LTI-enabled applications. One extension, for example, automates the sharing of course enrollment into a third-party tool safely and securely. Another extension simplifies the process of selecting and adding links to content from an external source when developing a course. A third extension enables faculty to automatically synchronize assessment scores and feedback in third-party tools into an LMS gradebook. Other new extensions, such as resource search and secure proctored exams, are under development. Use of such LTI Advantage tools enhances the institution's capacity to adopt digital learning resources, applications, and tools efficiently and securely, therefore implementing the vision of a [next generation digital learning environment](#) (NGDLE).

LTI Advantage

3 Who's doing it?

LTI Advantage, a new set of standards as of April 2019, has been adopted by several vendors. Blackboard has announced [certification for LTI Advantage in Blackboard Learn](#). Instructure, which has [adopted LTI Advantage certification in Canvas](#), reports that it is seeing more interest in use and development of LTI Advantage than in comparable products' adoption in the past. Building on LTI Advantage integration work with Moodle, Cengage continues to [partner with leading LMS providers to expand its integrations using LTI Advantage](#). Sakai and Tsugi have adopted the new standard and have become certified. LTI Advantage implementations are vetted, supported, and certified by IMS Global Learning Consortium—see [products that are currently certified](#).

4 Why is it significant?

LTI Advantage provides a reliable, robust conduit for data while adding key functionality beyond core LTI, enabling deeper and more targeted linking of learning objects from anywhere in the learning environment as well as flexible and secure conveyance of user and assessment data across all LTI-enabled applications. LTI Advantage improves an institution's digital learning ecosystem by making it more intuitive for faculty to integrate third-party resources, applications, and tools into a course. By allowing tools to reuse development investment across more platform integrations, LTI Advantage decreases the cost and time of integrating digital resources into an institution's learning ecosystem. LTI Advantage helps keep student data more secure by adding more transparency into data interactions between platforms, accelerates course enrollment, and automates the passing of assignment scores and grades from digital tools back to the LMS. LTI Advantage also reduces the burden of repetition of traditional custom-coded integrations and helps institutions find, test, and implement tools more quickly and more securely with minimal overhead.

5 What are the downsides?

Given that hundreds of tools currently use older LTI versions, it will likely take some time for them all to adopt LTI Advantage. Similarly, it may take time for vendors to retool and shift to development of products compatible with LTI Advantage. Adopting the improved new security features of LTI Advantage does require work for existing LTI enabled tools, but its use of industry web standards like OAuth2 and OpenID Connect provides additional benefits.

6 Where is it going?

By virtue of its inherent extensibility and strong interoperability foundation, LTI Advantage creates a pathway for vendors to develop new capabilities that can benefit the broader higher education community. The adoption of well-known security standards simplifies implementation, allowing the edtech industry to focus on end-user capabilities and value. Institutions have raised expectations that LTI Advantage products must be certified by IMS Global to be on their procurement list, which will help increase confidence in and efficiency of actual integrations on individual campuses and provide access to richer data and insights about the ecosystem. Once LTI Advantage is widely adopted, the need for custom application programming interfaces will be reduced. In these ways, LTI Advantage should prove to be an important next step in accelerating the movement toward a fully integrated NGDLE based on open standards, laying the groundwork for collection of actionable data for analytics.

7 What are the implications for teaching and learning?

LTI Advantage will enable institutions to move beyond current, often complex architectures by enabling more standard, seamless integration of learning tools and applications. By providing a simpler path to integration of third-party resources, apps, and tools into the institution's LMS, LTI Advantage reduces technology barriers for students and faculty. LTI Advantage can help faculty and instructional designers save time developing courses and course material and will thus encourage innovation in support of improving the teaching and learning experience. For example, its new security model is more mobile friendly, allowing designers to meet learners where they are. Faculty can save time and reduce errors by having assessment results and feedback recorded automatically in the course gradebook. By providing more secure and transparent access to data used to personalize learning, LTI Advantage will help institutions provide better student support services and more timely interventions. Improved consistency of such student data will enable better assessment of learner performance and support the evaluation of the efficacy of methods and tools. LTI Advantage offers the potential of significant new agility in the design, use, and evolution of essential components in an institution's ecosystem for teaching and learning.