

Interoperability and School Platforms

Purpose

This advisory is intended to provide Vermont supervisory unions and school districts (SU/SDs) with information and resources as a guide to address interoperability challenges.

Interoperability

Interoperability is the seamless, secure and controlled exchange of data between applications. Interoperability allows data to easily flow among applications that are developed for different purposes using a standardized vocabulary, structure and cadence.

The COVID-19 pandemic caused many school districts to rely on learning platforms to a degree they had never engaged with before. As part of education recovery efforts, Vermont SU/SDs may have implemented platforms that now pose interoperability challenges as educators and administrators attempt to efficiently utilize these systems. Most systems/applications have their own internal model and integration methods that require a patchwork of connections at the state and/or local level. Consequently, there are gaps in the integration and interfaces among disparate applications and many of these systems and applications are not interoperable.

In their resource guide on data interoperability, the Council for School Networking gives this illustration. “. . . if a teacher wants to gain a comprehensive view of a student’s performance, she must take data from a number of systems such as summative and formative assessment data plus grade book plus data from various software programs, plus student information, export it to a spreadsheet and then manipulate it manually. If a teacher wants to mix and match different digital resources, her students will have to log in to each resource separately requiring multiple ID’s and passwords. If a district wants to enroll students in a digital offering such as interactive math or language arts software, they will have to export all the information about what class, teacher, and students are to be signed up, manipulate it to be the correct format, then send it to the vendor – this has to be done every time a student joins or leaves the class.”¹

School Platforms

Below are descriptions of two prominent application platforms utilized within the education sector.

Learning Management Systems (LMS)

A Learning Management System is an application platform for the administration, documentation, tracking, reporting, automation, and delivery of educational courses or learning and development programs. Examples of LMS platforms are Blackboard, Canvas and Seesaw. Key functions of an LMS are enabling educators to develop and present content to their

Contact Information:

If you have questions about this document or would like additional information, please contact:
Lisa Helme, Student Pathways Division at lisa.helme@vermont.gov or (802) 828-6956.

students; monitor what their students are doing and how well they are participating; and use that information to grade the students' performances.

Student Information Systems (SIS)

A Student Information System is an application platform used to manage student data. Examples of SIS platforms are Infinite Campus, PowerSchool SIS and Tyler SIS. Key functions of an SIS are to provide capabilities for registering students in courses; documenting grading, transcripts of academic achievement and co-curricular activities, and the results of student assessment scores; forming student schedules; tracking student attendance; and managing other student-related data needs in an educational institution.

While these descriptions of a LMS and a SIS highlight the principal intent of each platform, developments in the commercial software market are blurring these distinctive functions. Many schools would like to purchase a single platform that will do all of the functions above, and vendors seek to accommodate that desire. However, whether a school selects a single platform to perform all functions or two, knowing the data standards undergirding the applications can help a district invest in products that support interoperability.

Data Standards

Guiding the operation of these application platforms are data standards. Data standards are the set of rules for the collection, management and organization of educational data that allows multiple systems to share their information in a seamless actionable way.² The education community benefits when developers program their software to follow an architecture that allows solutions from competing manufacturers to interact and share data efficiently. Below are three major data standards within the educational sector and the standard bodies that oversee this work.

Ed-Fi Data Standard

The Ed-Fi data standard, launched in July 2011, is an open-source data framework designed to connect a district's various software applications — such as student information systems, assessment software, rostering tools and learning management systems. The standard is promoted by the [Ed-Fi Alliance](#), a nonprofit organization of former teachers, administrators and developers working to advance data interoperability.

Vermont is planning on piloting Ed-Fi as a standard to use with data reporting. If this is successful, it will make using Ed-Fi easier for all to leverage. Look for vendors who support this protocol if you want to take advantage of the state offering.

IMS Global

[IMS Global](#) is a non-profit member collaborative. IMS enables a plug and play architecture and ecosystem that provides a foundation on which products can be rapidly deployed and work seamlessly together. Software developers may produce an IMS Global certified product by joining the collaborative and creating software that follows their standards.

Schools Interoperability Framework (SIF)

The Schools Interoperability Framework is a data-sharing open specification of rules and definitions that enable software programs from different vendors to share information. This effort was first undertaken by the Schools Interoperability Framework Association, a nonprofit membership organization composed of school districts, state education agencies, software companies and other organizations. In 2015 the association was renamed the [Access for Learning Community](#) (A4L).

Vetting Educational Products for Interoperability

In vetting new applications for use in a school community, it is recommended that administrators identify the specific needs of the school and how a product addresses those needs. Facilitating an internal dialogue on this question will help educators and technical staff identify key applications, rather than implementing a myriad of products that may not interoperate. By working collaboratively with education technology directors and information technology managers, administrators can help ensure investments are made to achieve compatible operations between the existing technical hardware, network capacity and new applications. Planning discussions will help educators describe their needs to technical staff who, in turn, may research products and recommend applications that meet those needs and provide interoperability with existing platforms.

Vendor Questions

To determine whether a product is interoperable with existing applications, there are several key questions school personnel can pose to vendors as part of the evaluation process. Project Unicorn, a national interoperability initiative for the non-profit InnovateEDU, offers the following set of evaluative questions.³

- How does your product allow me to import, export or synchronize information?
- What types of information can I transfer and in what format?
- Does your product support a data standard?
- Do you adhere to secure student data privacy policies and is your company willing to sign a data privacy agreement?
- What is the process for incorporating your product into our curriculum?
- May I reach out to a customer who has incorporated your product into their curriculum to ask about their experience?

Asking questions like these will aid SU/SDs in retaining a broader focus for purchase decisions that considers both past and future applications and how all will function efficiently together.

Resources

Below is a list of organizations and resources on interoperability.

[Access 4 Learning](#): The A4L community, and its special interest group the Student Data Privacy Consortium, is a non-profit collaboration of schools, districts, states, software vendors and consultants that address all aspects of learning information management. On their resources

page is a range of information from Schools Interoperability Framework (SIF) standards to video tutorials on interoperability.

Council for School Networking: CoSN is a professional association for school system technology leaders. They offer this toolkit to help school districts improve their interoperability.

Digital Promise: Digital Promise is also known as the National Center for Research in Advanced Information and Digital Technologies, a non-profit organization originated by the U.S. Congress as part of the 2008 re-authorization of the Higher Education Opportunity Act. Digital Promise offers their *Data Ready Playbook* to support districts in creating an interoperable data solution that allows districts to identify and address equity gaps.

International Society for Technology in Education: ISTE is a nonprofit organization that works to accelerate the use of technology to solve problems and inspire innovation. They offer the guide, *Better EdTech Buying for Educators*.

Project Unicorn: Project Unicorn is an initiative from InnovateEDU, a non-profit organization focused on improving data interoperability standards in the education technology space and on empowering districts and states to be smart consumers in their procurement of technology. On their featured resources page are a variety of guides and use cases for schools.

State Educational Technology Directors Association: SETDA is the principal nonprofit membership association representing state educational technology leaders. Their publication, *State Education Leadership Interoperability*, highlights how state leaders can tackle data interoperability with the emergence of data standards for student information, assessment, digital content and other educational applications.

¹ CoSN Interoperability Toolkit, <https://cosn.org/interoperability>

² SETDA, State Education Leadership Interoperability, <https://www.setda.org/master/wp-content/uploads/2018/05/State-Leadership-Interoperability.pdf>

³ Project Unicorn, 10 Questions for EdTech Vendors, <https://www.projectunicorn.org/resources/10-questions-for-edtech-vendors>