SCORM and SIF – Leveraging Work for Successful Solutions

Introduction
According to Wikipedia (2006), “interoperability is the ability of products, systems, or business processes to work together to accomplish a common task. With respect to software, the term interoperability is used to describe the capability of different programs to exchange data via a common set of business procedures, and to read and write the same file formats and use the same protocols.” There are numerous benefits to interoperability between software applications, including increased data quality, reduced costs, increased staff efficiency, improved IT implementation and business practices, enhanced data and business process and transferred data in a secure environment. Several organizations work to develop standards for interoperability between teaching and learning, administrative and training applications.

Two such organizations, the Schools Interoperability Framework Association (SIFA®) and Advanced Distributed Learning (ADL™), generate and produce technical standards and specifications to enable interoperability between applications. The specification for SIFA is called SIF and the standards and specifications for ADL include SCORM.

SIF and SCORM focus on different models. SIF focuses on developing a secure, web-service infrastructure and data objects to enable interoperability between educational applications whereas SCORM has focused on providing a comprehensive suite of e-Learning capabilities that enable interoperability, accessibility and reusability of Web-based learning content.

Based on these different models and premises, the conversation in pK-12 education is not a choice of “either SIF or SCORM”. The focus instead should be on clarity, focus and leveraging each specification and standard, while maintaining a clear direction for the audiences each organization represents.

SIFA and the SIF Specification
Since being established in 1997, SIFA has focused on the development of technical specification enabling interoperability between school educational applications. A collaboratively defined data model, infrastructure and data objects have been generated uniquely for schools, districts and states by end users and vendors. SIFA’s vision has been to enable schools to better utilize technology in a manner that leverages the promise and capabilities of interoperability between disparate applications.

SIFA was initially created by administrative and instructional software companies and end users who saw a need to collaboratively develop specifications for interoperability between school...
educational applications to streamline implementation and data movement. Traditionally, schools, districts and states have many disparate applications that required multiple data entry on differing platforms. This system necessitated countless staff hours for the extraction, reporting and usage of data. Since the start of SIFA, numerous drivers – from local districts that are concerned about the effective usage of resources to national government accountability entities - have continued the focus on the need for a blueprint of school applications’ interoperability.

The SIF Specification is not a product, but a technical blueprint for school software that will enable diverse applications to interact and share data seamlessly. The SIF Specification is an open standard that any technology providers or schools can develop to and implement. The Specification development process gathers the various stakeholders, from end users to developers, to ensure accurate identification of issues and solutions development for data requirements in today’s educational landscape.

SIFA currently has numerous proven implementations across the globe supplying interoperable functionality to over 5 million students and teachers. The end users and the vendor community have asked SIFA to meet their needs by evolving the current SIF administrative data focused specification to enable teaching and learning applications. As SIFA moves into the teaching and learning application environment, acknowledging existing specifications and standards is crucial. SIFA does not want to reinvent the wheel for the educational marketplace.

SIFA presently serves over 350 members comprised of schools, districts, government agencies, vendors, non-profit organizations and several international members. Some of the benefits that districts and states have realized since implementing SIF include: increases in student achievement, enhanced data quality, data interoperability, growth in funding, improvement in student services, more time to focus on strategic IT implementation issues, data interoperability, single points for data entry and increased opportunities to analyze student data.

For more information about the SIFA and SIF please visit http://www.sifinfo.org

ADL and SCORM
The Department of Defense (DoD) and the White House Office of Science and Technology Policy (OSTP) launched the Advanced Distributed Learning (ADL) Initiative in November 1997. The mission of the ADL Initiative is to provide access to the highest quality education and training, tailored to individual needs, delivered cost-effectively anytime and anywhere. The ADL Initiative aims to accelerate large-scale development of dynamic and cost-effective learning software and systems and to stimulate the market for these products. This will help meet the expanding training

Western Heights School District located in Oklahoma started its implementation five years ago. The focus was to acquire best-of-breed software applications and build a data warehouse with custom reporting tools for data driven decision making. Because this implementation was driven from the top of the school district, the Western Heights SIF solution was far-reaching, bringing benefits to all areas of the district. Most notably, benefits include increased student achievement and increased funding opportunities due to more accurate student counts. Due to the increased accuracy in student counts and data reporting, Western Heights increased student achievement over 30% and generated an additional $1.3M in state and federal funding.

The Wyoming Department of Education desired to reduce the burden on districts for state reporting, increase accuracy on data collected from districts and enable faster reporting back to the districts. With the implementation of SIF, Wyoming was able to eliminate 23 aggregate reports, reduce 70,000 hours of school staff time as well as 18,000 hours of district staff time resulting in an estimated $1.7M in state report savings. All of the data is inputted locally in 10 Student Information Systems (SIS) and then collected at the 10 regional data acquisition sites across the state. This implementation allowed each school district to continue utilizing its current SIS, without the need for one, single system, to submit data.
needs of government, academia and industry. As a foundation for accomplishing those goals, ADL's Sharable Content Object Reference Model (SCORM) aims to foster creation of reusable learning content as "instructional objects" within a common technical framework for computer-based and Web-based learning. SCORM describes that technical framework by providing a harmonized set of guidelines, specifications, and standards based on the work of several distinct e-learning specifications and standards bodies.

SCORM is a compilation of technical standards and specifications from IEEE, IMS and AICC. This collection of standards and specifications was initially convened for the use in the military and military applications. The collection includes an overview and three books, Content Aggregation Model (CAM), Sequencing and Navigation (SN) and Run-time Environment (RTE), along with supplemental materials. The “SCORM Bookshelf” model is depicted below:

ADL has managed the adoption and implementation of SCORM through a Global Model. This model facilitates the process of bringing learning technology research and development through a specification and accredited standards process. Before ADL there was not a structured way to test and prototype learning technology specifications before them became an accredited standard. ADL provides a testbed and prototype capability that validates the specifications are meeting the ADL communities’ requirements before they become a standard. This model is depicted below:

For more information about ADL and SCORM, please visit http://www.adlnet.org
Partnership Rationale
There have been numerous conversations among educational and vendor organizations that a decision between SIF and SCORM overlap must be made for an “either/or” standard of choice. However, the conversation for interoperability between applications is not a SIF vs. SCORM issue. Each specification and standard accomplishes different things based on the visions and goals of each specification and standard. Each has a different purpose and a different intended audience. While some of the data objects may enable similar interoperability functions, there are unique differences and needs of each specification and standard. In addition, there is no desire by either organization to duplicate effort and work. With this as a strategic focus of both SIFA and ADL, the wish exists to work together to enable interoperability between all applications while maintaining the interests of the individual organizations.

Based on this assumption, each organization and specification and standard may not be focusing on convergence. Instead each organization may concentrate on clarity and leveraging each standard’s or specification’s strength to further interoperability for all industries and applications. Each organization’s technical solutions should stay centered on the intended purpose and audience. With the understanding that each accomplishes a different purpose, there is recognition from both ADL and SIFA that there may be components of the specifications and standards that can be leveraged to further the mission and vision of each separate organization without recreating specifications and standards that are adopted and implemented. The desire exists by both organizations to further examine and partner on current and future work.

Partnership Purpose
Given the confusion and lack of clarity around the purpose, intent and use of SIF and SCORM, SIFA and ADL will work together to provide leadership in the implementation of these standards and specifications for the different industries each represents. The focus of bringing together SIFA and ADL will generate a strategic, executive, collaborative team to outline a strategy for collaboration, implementation and future efforts.

The initial focus of the team will be to:
1. Generate this joint executive brief about the use and intent of SIF and SCORM
2. Create and implement a proof of concept for SIF and SCORM
3. Provide clarity and best practices in the use of SIF and SCORM
4. Develop a long-term action plan for collaboration between SIFA and ADL

This initial communication includes a brief overview of each organization as well as a formal intent to accomplish the initial foci listed above. Leveraging the prior and future work of each organization will only make the implementation of specifications and standards stronger. SIFA and ADL recognize that the intended audiences are different and therefore require separate specifications and standards; however, there is the common understanding and acknowledgement that leveraging, where applicable, will further enable the vision and mission of each organization.