Ed Tech Vendors Benefit from Software Reuse and Market Access

"From our first meeting in Tennessee, it was very clear – right out of the gate – that Ed-Fi technology took into account everything it needed to, from features to protection of privacy."

- Ray Ackerlund – VP of Marketing & Product Management, Skyward

Executive Summary

Organization:
Skyward Inc.

Project:
Tennessee DOE - Student Information System Project

Challenge
- State reporting requirements are complex and resource intensive
- Systems maintenance required as requirements change
- One-off solutions are obstacles for product enhancements that benefit all customers

Solution
- The widely-adopted, CEDS aligned Ed-Fi Data Standard
- Technology components that are already developed and freely available
- Access to a growing community of 23 states and more than 9,800 districts

Results
- More than 90% of data elements in common with the Ed-Fi Data Standard
- Cost savings in the hundreds of thousands of dollars
- Increased focus on product innovation

Overview

Education agencies face a significant challenge of unlocking raw education data that is stored in a range of legacy systems so that it can be put to use by administrators and teachers. The task of unifying, standardizing, and organizing that data makes the costs associated with meeting state education data reporting requirements significant. Despite the size and complexity of projects aimed at solving these challenges, many states are struggling with reduced budgets that continue to shrink. Faced with the reality of doing more with less, 24 states including Tennessee have now adopted the CEDS aligned, Ed-Fi Data Standard and various technical components of the Ed-Fi Implementation Suite.

In parallel, the marketplace of solutions being developed by vendors are effectively one-off products customized to each agency due to unique state regulations. This makes it costly and time consuming for Student Information Systems (SIS) vendors to support unique product solutions for each new customer they acquire. Skyward Inc., for example, historically invests half-million to a million dollars in development costs to enter a new state. As state requirements change, maintenance costs also increase on existing installations.

Vendors, like Skyward, that operate in the 24 states that have embraced the Ed-Fi Data Standard, are able to re-use approximately 80% of their development work from one state to the next. Why? Because by using Ed-Fi technology components enabled by the Ed-Fi Data Standard, Skyward can reuse development work from previous projects. This translates into cost savings in the hundreds of thousands of dollars and time savings for developing interchanges. As a result, this standardized approach allows vendors to focus their resources on innovation instead of constantly redeveloping custom interfaces from one state to the next that are costly to maintain and that add risk to projects.

Background

Skyward has been developing K–12 administrative software since 1980. They attribute their long track record of success to complying with the seemingly infinite number of federal, state, and local extract and reporting requirements.

In 2012, the Tennessee Department of Education (TDOE) launched an initiative with the Ed-Fi Alliance to accelerate improvements to the statewide SIS architecture when changes in the market drove most Tennessee school districts to purchase a new student information system.

The TDOE selected Skyward, an Ed-Fi licensed vendor, as one of five approved vendors for use in Tennessee school districts. Districts were not required to use one of the approved vendors, but if they did, the state would subsidize approximately half of the cost per-student for using the state-approved SIS.

Challenges of the Traditional State Reporting Model

As every state creates its own regulations, the marketplace of vendor solutions being developed are effectively one-off products customized to each state. Due to the complexity, time, and cost associated with making these adjustments, Skyward typically expects to invest between a half-million and one million dollars to enter a new state, just in meeting the state-mandated requirements.

While the costs are front-loaded, changes in political climates, federal mandates, and the needs of regulatory agencies drive changes to state reporting requirements, resulting in increased annual investment from vendors to keep up with those changes. Skyward budgets 1,000–1,500 development hours per state to support ongoing enhancements based on legislative or regulatory changes to the data reporting requirements. Since these state changes are unpredictable the costs end up being highly variable.

This makes calculation of long term maintenance fees very risky (especially in multi-year contracts), it draws resources from vendors that they would otherwise be able to invest into higher value work like R&D and innovation, and it limits vendors' ability to reach new customers and expand into new markets. It also has a direct negative impact on the districts and schools they serve since systems must be upgraded. These upgrades affects uptime, usability, and training protocols. It also increases the cost of the software, and limits the introduction of new value added features.

Advantages of Ed-Fi Technology and the Ed-Fi Community

The Ed-Fi Implementation Suite, enabled by the widely-adopted, CEDS aligned Ed-Fi Data Standard, serves as the foundation for enabling interoperability among secure education data systems designed to improve student achievement and teacher satisfaction. Driven by community input and field tested solutions, the Ed-Fi Implementation Suite provides technology components that are already developed and freely available to the ed tech sector – enabling vendors to support the needs of education agencies to connect and maintain secure data systems in an easy and cost-effective manner. The Ed-Fi Implementation Suite includes an Operational Data Store

(ODS) for integrating secure real-time data from other systems, a complementary Application Programing Interface (API) to easily exchange data between those systems, a dashboard for putting real-time, actionable education data at the fingertips of educators, a data warehouse for analyzing information snapshots, and development tools that help developers implement these components.

Figure 1: Example architecture for agency environments using Ed-Fi Implementation Suite 2.0

> "We are able to re-use approximately 80% of our development work from one state to the next, giving us the flexibility to address unique requirements."
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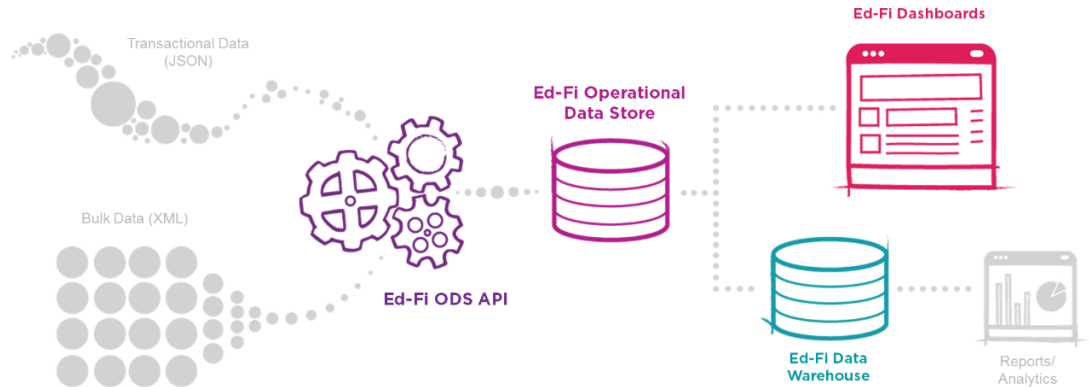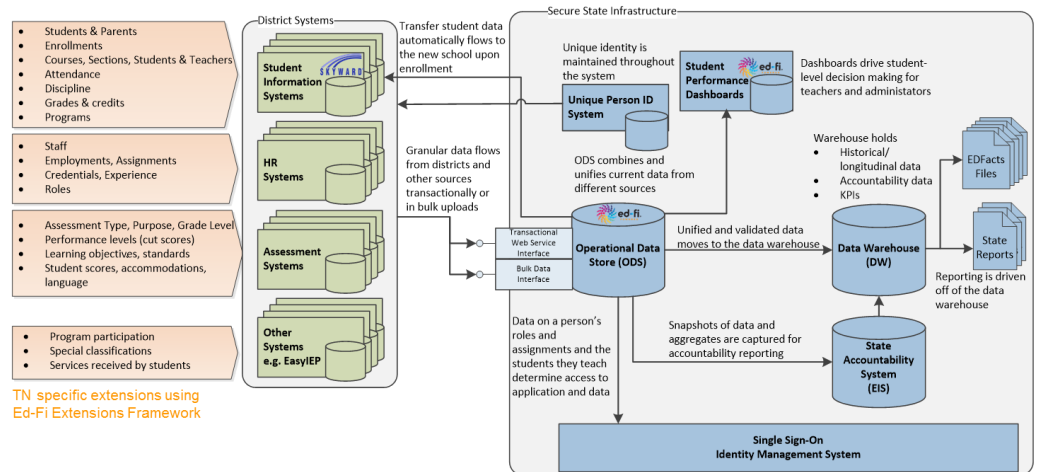> - Ray Ackerlund – VP of Marketing & Product Management, Skyward

Twenty-four states, covering more than 9,800 districts have now licensed the Ed-Fi Data Standard and Implementation Suite of technology components. Agencies are seeing 85–90% commonality between their data and the CEDS aligned, Ed-Fi Data Standard. For vendors operating in states that have implemented Ed-Fi technology, this means they are able to re-use approximately 80% of their development work from state to state, with flexibility to address unique requirements. The Ed-Fi Extensibility Framework also allows for customization in way that preserves the integrity of data that is common to the Ed-Fi Data Standard.

Figure 2: Graphical representation of the systems being implemented by Tennessee Department of Education which incorporates technology from Skyward as well as the Ed-Fi Alliance. Source – Tennessee DOE

Results

Of the 839 data elements used in the Tennessee project, only 81 were found to be truly unique to Tennessee, versus the majority of data elements shared by other states and built-in to the Ed-Fi Data Standard. Skyward immediately understood the considerable benefits of integrating technology from the Ed-Fi Alliance into their products and anticipates recouping its investment to support Tennessee districts within the first year.

The most significant result of Skyward's investment is the savings on redevelopment costs. Skyward has historically spent a half-million to one million dollars entering each new state. By implementing the Ed-Fi Data Standard, they can reuse development work from previous states and this has translated to cost savings in the hundreds of thousands of dollars and time savings for developing interchanges. The result is a focused development effort by Skyward on new features; providing a competitive market advantage and an ability to support emerging market trends and customer needs.

It has also drastically reduced the costs of entering a new education agency by 80%, streamlined data submissions that allows their customers to achieve 100% compliance, and made them a much more obvious choice for the growing number of states adopting the Ed-Fi Data Standard and Ed-Fi Implementation Suite. Additionally, Skyward is able to dedicate additional resources to new product development. All of these factors have benefited Skyward's reputation and competitiveness, reduced barriers to entry, and increased their opportunity for further growth.

The advantages to education agencies of using vendors that have adopted the Ed-Fi Data Standard are also considerable. For the Tennessee districts using Skyward's software, it has improved data accuracy and on-time submissions, provided new analysis capabilities, reduced ongoing maintenance costs, bolstered interoperability between systems, and allowed for more control at the local level – benefiting teachers, classrooms and students. Skyward expects very similar results in districts across the nation as their footprint expands along with growing number of Ed-Fi licensed education agencies.

For More Information

To find out more about the Ed-Fi Alliance and Ed-Fi technology, please visit www.ed-fi.org.
To find out more about Skyward, please visit www.skyward.com.
To find out more about the Tennessee Department of Education, please visit www.tn.gov/education/.