Statewide Longitudinal Data System

2007 and 2009 Grants Summary

Introduction

The Colorado Department of Education (CDE) was awarded federal grants in 2007 and 2009 totaling approximately $21M to assist in building a Colorado Statewide Longitudinal Data System (SLDS). Longitudinal data systems provide ways to identify correlations to student's experiences and achievements that later impact their careers and career choices. This is made possible by sophisticated data management techniques that allow us to securely identify the same student in multiple data sources and compare associated information. For example, student x in CDE's database may have information about K12 enrollment and performance in certain programs, while the same student later in his/her educational career appears in the Department of Higher Education database with information about college attendance and degree sought. CDE's process and technology allows the comparison of those data without the use of one unique common student identifier. Instead of one identifier applied to each student, a matching algorithm compares standard sets of student demographic data to identify the student.   Comparing data across agencies like this creates almost endless possibilities to match choices and/or actions to results.

The Impact of the SLDS Grants

While the concept may sound easy, the implementation is complex and challenging. There is a lot to build behind the scenes before the data can be utilized for actionable results. The federal grants provided funding to accomplish the following:

- CDE's **technology infrastructure** was upgraded, including improvements to the data warehouse, enterprise architecture and enterprise security protection like the identity management or single sign-on system.

- **Colorado Growth Model** was developed, implemented and enhanced.

- **LINK technology was introduced** which allowed matching of data between two or more different data sources. Once matched, data may then be aggregated and used for reporting.

- **Data Pipeline**, used to collect data from Local Education Agencies (LEAs), was implemented, replacing a very old system. This was the most visible change and it created a standardized way to collect data for reporting.

- **Data privacy** documentation like Data Sharing Agreements (DSAs) were created. CDE continues to be a leader in Data Privacy. Many states were surprised by the huge data privacy backlash that occurred in the 2016 timeframe and had to scramble to put data privacy policies and processes in place, while CDE had already developed several data sharing agreements.

Key outcomes of the 2007/09 grants allowed CDE to demonstrate the ability to share data systematically with several agencies across Colorado, including the Departments of Corrections, Labor and Employment, Higher Education, and Human Services.

Lessons Learned

Knowing that an SLDS implementation is ever evolving, the lessons learned were carefully identified and documented.

Organizational Change Management (OCM) – CDE found that Organizational Change Management is an art, with so much to balance. Change within future projects may be more effectively managed if people are given smaller, more easily digestible chunks of information more frequently. This allows them to absorb the changes at a more

comfortable rate. As an organization, CDE is rightfully protective of its data. Education stakeholders need to shift their trust to CDE's continuing efforts to protect student data at all times, even when appropriately sharing with others. This exchange of data with partners following similar security and privacy practices can be an exciting and powerful change agent towards better serving our students.   Matching the data with other agency data yields more accurate and robust results. This sets the stage for policymakers to make strategic and effective educational decisions.

Communications – It seems that communications can always be improved. These implementations taught us that communication touch points should be integrated into the project plan. They demonstrated how to better define when to communicate, how much to share, and what vehicles work best to connect with which stakeholders. This more integrated approach, coupled with effective OCM, more clearly communicates the value, benefits, challenges, and risks that apply to each touch point.

We also learned the importance of communicating what SLDS is NOT, for example:

- When CDE combines and matches data, it is only done for the intended use case and data is deleted immediately afterwards.

- For Colorado, SLDS is more of an activity that is driven from well documented use cases, rather than the creation of a database with immense amounts of personally identifiable student data.

- SLDS is not a database into which many people can gain access; the "keys" to the system are tightly managed and anyone with authorized access has a distinct need and is identified via our data sharing agreements.

Governance – CDE's project and data governance did not mature at the same rate as the technology matured, primarily due to fear of data and its power. CDE rarely uses the new technology because of that. Going forward, governance is a critical component to SLDS success. In addition to putting cross-agency representatives in charge of steering project implementation, it is also key for an interagency body to help with the following:

- Ongoing prioritization of technology use,
- Resource allocations for maintaining systems,
- Managing data sharing agreements to ensure strict compliance with all agency data requirements, and
- Other general sustainability activities.

This type of governance body is also key for providing direction for future SLDS endeavors.

Manage Funding – In this SLDS work, CDE learned that managing grant funds ourselves would not only be more expedient but would also keep the focus on the grant's educational goals. Previous grants in 2007 and 2009 included sub-recipients across the state, and CDE was not able to manage other agencies' focus on the required grant goals. This has already been handled via the 2019 grant application and disbursement of funds.

2019 Colorado Statewide Longitudinal Data System Grant

CDE was awarded $2.3M in February 2020. CDE will leverage what was built with the 2007 and 2009 grants as well as ongoing work since earlier grant funding was depleted. CDE's Information Management Services division is folding in the items from previous lessons learned as the project team is well into the planning stage of the 2019 grant. Please see the 2019 SLDS Grant Summary for more information about the 2019 grant.