

History of Missouri's Comprehensive Data System: Beginning in 2002, prompted by the need for a robust data-driven decision-making capacity, state education officials completed a visioning process for the establishment of a comprehensive K-12 data and reporting system. In the subsequent years, DESE implemented a multi-phase strategy to develop this capacity. In 2005, Missouri laid the foundation for the initial development of the MCDS with the adoption of a unique student identifier (MOSIS) and implementation of a system to support the assignment of identifiers. These identifiers, are designed to be stable across time, would ultimately establish the basis for longitudinal analysis of education records in Missouri.

The next phase of the data improvement initiative unfolded in 2006 with the addition of unit-record data on K-12 student assessments. Prompted by federal reporting requirements designed to ensure continuous improvement of student learning outcomes, this assessment data encompassed standardized test results in several key areas. In 2007, the state piloted the collection of unit-record data from districts to support the development of a statewide student information system. In 2007, the first MCDS Data Access and Management Policy was released to address privacy, protection, and data accessibility.

The data collection system went into production in 2008, collecting over one million education records bimonthly to support educational improvement.

In 2008, fueled by a grant from the National Governor's Association (NGA) Center for Best Practices, Missouri's project of developing a longitudinal data system received a significant boost. Under the auspices of this grant, Missouri's education and workforce partners teamed up to develop a process for interagency data sharing and governance. The project began by collaboratively identifying important interdisciplinary research questions. Then, stakeholders across the P-20 spectrum identified data that could be contributed to a linked data system to answer those questions. Using a proprietary de-identification process, unit-record data from state education and workforce agencies were combined and analyzed to gain insight into the sustainability of a long-term, integrated, comprehensive P-20 database.

There were several limitations of the data model developed under the aforementioned NGA grant: (1) cross-agency data could only be linked on a project-by-project basis; (2) there was no long-term management strategy for incorporating additional data systems; and (3) analyses generated from the system were unreliable because of systematic biases in the types of records that could be linked. Despite these shortcomings, project participants benefited greatly from the opportunity to learn from the experience and were inspired to investigate ways to improve the system. More significantly, the project also sparked the development of the state's first template for interagency data governance to ensure proper oversight of linked data.

Under the proposed governance framework, Missouri's P-20 Council comprised of agency heads representing state education and workforce agencies, would have the authority to approve or deny requests for access to the comprehensive data store. Furthermore, council members would designate experts to serve on an interagency review board to support the council in the management of data access requests. Under the governance policy, each partner agency would still maintain responsibility for its own production data system, but the council members would work together to establish interoperability standards, common identifiers, and security protocols for preventing unauthorized access to linked data.

While the Missouri P-20 Council is no longer legislatively mandated, the spirit of the work the Council was charged to oversee continues. Given that the longitudinal data system work aligned so closely with DESE's vision for a comprehensive data system, the P-20 Council has established a leadership role working with the other child-, education-, and workforce-serving agencies. These partnerships have provided opportunities to further outline the governance process including the development of MOUs and decision-making.

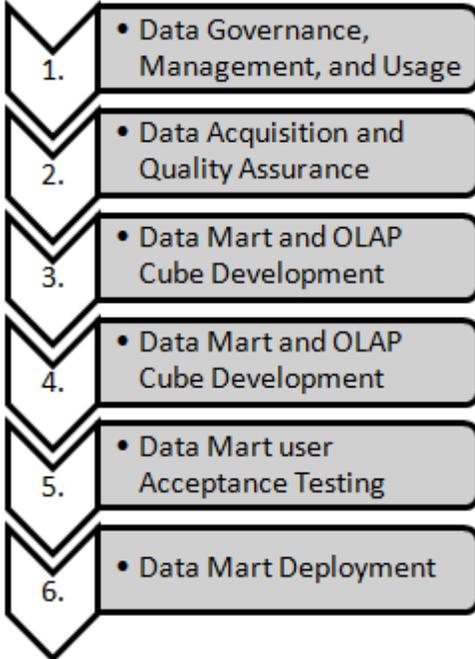
Partly as a result of Missouri's budding data system development and ability to distill the lessons learned from the NGA-funded project into an action plan for system improvement, Missouri was successful in securing an Institute of Education Sciences (IES) SLDS grant in March 2009. This grant provided the necessary resources to invest in new data collections, including a teacher certification system and course-level student performance data. Additionally, this infusion of funding was instrumental in the development of a student growth model that allowed state officials to track student progress on assessments of learning over time.

The IES/SLDS 2009 grant has supported the integration of a variety of K-12 person-level data into this system, including student enrollment and attendance records, assessment results, demographic information, courses completed and grades earned, and teacher/instructor records. By associating each student with a unique identifier that has no inherent meaning, students can be tracked from one year to the next while maintaining a high level of security. Additionally, since student records are linked to an interactive reporting system, districts now have the capability to access secured reports containing student-level data from the MCDS Portal. The Portal also provides a public reporting feature that supports transparency in Missouri's education system and gives parents tools to make informed decisions about their children's education. Additionally, it has tools for administrators and teachers to inform practice.

Recently, through increased collaboration among partner state agencies, MCDS has gained an expanded capacity to track students into the state's higher education system. For example, since executing a data-sharing agreement with the state Department of Higher Education, DESE has shared student records on recent high school graduates with state officials for the purpose of determining school-wide rates of application for federal financial aid for further education. In the future, this information might be used to help guide actions at individual high schools by, for example, encouraging high schools with low filing rates to implement improvements to its guidance counseling program.

Developments have also been made in the state's capacity to link education records with workforce and economic data. While K-12 and higher education records have been linked with Unemployment and Income wage records for analysis of labor market outcomes on an ad hoc basis for some time, the state's recent Workforce Data Quality Initiative grant has generated new momentum towards incorporating workforce measures into the MCDS. By engaging with stakeholders in the workforce community, supporters of the data system have gained insights into the complex variety of workforce programs currently sponsored by state and federal agencies, ensuring that the associated data can be leveraged to the maximum effect for the improvement of education at all levels. Stakeholders across the state are currently in the process of implementing a multi-agency data-sharing agreement to permit research on workforce programs that require the use of linked education records.

Figure 1: Six Steps for Integrating Data



In June 2011, DESE released an updated version of the MCDS Data Access and Management Policy to address advancements in privacy, protection, and data accessibility (see Attachment 1: MCDS Data Access and Management Policy). DESE has also operationalized the six key steps that must be addressed when integrating data. Figure 1 is a representation of the six steps and Figure 2 is an example of the activities and definitions used for Step 1: Data Governance, management and Usage. Activities and definitions exist for six steps.