

Building Student-level Longitudinal Data Systems

Lessons Learned from Four States

➤ What is a longitudinal data system?

A complete state longitudinal data system includes the following 10 essential elements:

1. **A unique statewide student identifier.**
2. **Student-level enrollment, demographic and program participation information.**
3. **The ability to match individual students' test records from year to year to measure academic growth.**
4. **Information on untested students.**
5. **A teacher identifier system with the ability to match teachers to students.**
6. **Student-level transcript information**, including information on courses completed and grades earned.
7. **Student-level college readiness test scores.**
8. **Student-level graduation and dropout data.**
9. **The ability to match student records between the Pre K–12 and higher education systems.**
10. **A state data audit system assessing data quality, validity and reliability.**

➤ Which states were visited and why?

Florida, Utah, Virginia, and Wisconsin were selected because of their diversity in terms of geographic location, size of student population, existing data systems, and political and financial support for building a longitudinal data system.

Florida	Utah	Virginia	Wisconsin
67 districts, 5 charters	40 districts, 52 charters	132 districts	425 districts, 15 charters
2.6 million students	510,000 students	1.2 million students	875,000 students
Longitudinal data since 1986-87	Longitudinal data since 2005-06	Longitudinal data since 2005-06	Longitudinal data since 2005-06
State legislation and appropriations support information systems in education	State legislation and appropriations support information systems in education	State legislation and appropriations support information systems in education	No state legislation or appropriations to support information systems in education

➤ What does it take to build a longitudinal data system? How long will it take?

“Scheduling, resources and capacity all have to come together.”

Time

1.5 – 3 years: To implement a student identifier (ID) system and sometimes a data warehouse. There are pros and cons to implementing a system quickly, but most state recommend taking the time to adequately plan and pilot the system.

Strong advocate(s)

A strong advocate or group of advocates was needed and useful in all four states to promote the system, allay misconceptions, and assuage fears. Advocates were found in legislators, state superintendents, school district representatives, and governors.

Funding

In considering costs, it is helpful to view the public education system like a large corporation and specifically budget a percentage of the corporation's expenditures for information systems rather than look at the specific dollar value associated with each component.

Human Resources

Whether a state chooses to contract with a vendor or build the system themselves, staff time at the state education agency will need to be dedicated to the effort to monitor contracts, conduct internal and external advisory committees, participate in and document the decision process, and consistently communicate with all parties involved.

Phased implementation

It is most productive in the long run to have a long-term plan while building the system in small, manageable phases; otherwise, the project becomes too cumbersome for state and district personnel. One state has a 10-year plan but works in two-year phases.

Oversight

State education agency staff in charge of the project must have the authority to make decisions or the capacity to get timely decisions from higher-level policymakers. The project should have both internal and external oversight committees to review progress and make higher-level decisions or recommendations.

Public relations and promotion efforts

Marketing and public relations directed internally to state education agency staff and externally to school districts, policymakers, and the public is invaluable to make the advantages and usefulness of the system known to stakeholders.

Plans for ongoing maintenance and change

Information systems are never static – as federal and state laws change, accountability systems are improved and education programs are enhanced, the need to refine and alter the data system will arise. Develop a process early on for managing and funding necessary changes.

➤ What can we learn from other states who have already started the process?

“No ‘shrink-wrapped answer’ is available.”

Data Managers

- *Spend the time to become knowledgeable about the issue.* Don't design your system without determining what is already available. The general model includes retrieving existing IDs, creating new ones, updating student attributes, and resolving conflicting data. If you do not have in-house experience, go visit states that do and learn from them. Expect to spend a year in discovery for an effort like a data warehouse and know that “no shrink-wrapped answer” is available. Be aware that it will take staff time for development and contract monitoring activities.
- *Create an internal advisory group.* Bring in policy and program area staff to help define data and changes needed over time. Each program area should have the capability to extract data and produce reports. Having everyone at the table to communicate the issues and understand the payoffs leads to stronger commitment to consolidating data. Since each system (for example, finance or facilities) has its own business rules, it is essential to include all relevant people in the effort to understand how the data are being used so as to align processes, definitions, and edits.
- *Create an external advisory group.* Consider the needs of both small and large districts; neither is immune from the pitfalls of data collection and reporting processes. Try to put a mix of advocates and dissenters on the advisory board so you hear all the issues up front and can address them.
- *Provide regular communication* with school district representatives; staff across departments within the state agency, including those from IT, assessment, federal programs, teacher certification, school funding, and any others who collect and use data; policymakers; and all other interested parties.
- *Find the capacity to provide training* on data definitions, submission requirements, uses of the data, and report production.
- *Build in some flexibility to accommodate* the capacity of large districts that may already have systems of their own, as well as the small districts with little or no experience in data collection, submission and use.
- *Implement data validation processes.* Checks for formatting errors, out-of-range or unlikely data, and comparisons to prior year data to look for aberrations and outliers should be performed on as much of the data as possible, as quickly as possible, as they are submitted. The results of these analyses should be provided to districts, followed by a window of opportunity for corrections, and the requirement of official sign-off from a district representative.
- *Provide timely turnaround of reports.* Once the data are locked, provide the capability for districts and policymakers to access the data as soon as possible. Create user-friendly access to the most commonly requested reports as well as the capacity to create custom reports.
- *Engage in public relations and promotion efforts.* Marketing and public relations directed internally to state department and externally to school districts, policymakers, and the public is important. Although it takes a different skill set to do marketing, the staff managing the system must make the advantages and usefulness of the system known to their stakeholders by calculating and disseminating information regarding how costs are offset by increases in

efficiencies, and describing the ways in which the system provides better and timelier information leading to more informed and better-targeted instruction for students.

- *Create a plan to provide for support* of ongoing maintenance of hardware, software, staff and training.
- *Accommodate research requests* by creating a website with public query tools, developing a research agenda to take to the higher education community, or forming a partnership with another organization that can access data following the state department's requirements for maintaining security and confidentiality.

Requests for Proposals (RFPs)

- *When writing a RFP, be as specific in delineating your requirements as possible*, and try to have clear expectations between the state and the vendor. "Keep your scope small and have clear deliverables."
- *Be knowledgeable about what you are looking for* and have the vendor demonstrate it for you.
- *Ask the respondents how they would evaluate themselves* regarding their success in completing the task.
- *Encourage vendors to be creative in their proposals*. Put an open-ended scenario in the RFP and assess the responses. Look for a good mix of specificity, flexibility, and creativity.
- *In reviewing the responses to RFPs, "beware the snake oil salesman."* A response of "32,000 hits on the website" versus "principals using the reports to inform decisions" is very telling.
- *A good RFP response should demonstrate an understanding of education data* and the current state of education data systems in the world today. Responses that are overly technical are not the best, nor are "big name" companies necessarily the best ones to do the job. What is required is an understanding of the processes involved in education data collection, submission, and extraction from the local level to the state level.
- *Create a panel to evaluate the responses to the RFP*. If possible, include a local assessment director, the state assessment director, IT staff from within the state and from another state, and more educators than IT staff.
- *Require experienced staff to be on your vendor team* – those who can help shape the products when the state doesn't quite know what they need. "Look for a vendor who knows more about what you need than you do."
- *Contracts need to be carefully written* to address issues such as:
 - turnover in vendor staff, requiring re-education of new staff regarding the state's needs, expectations, and requirements;
 - lack of human resources for efforts such as the help desk and training;
 - the need for more onsite visits by vendor staff or the requirement that developers work onsite;
 - firm dates for deliverables; and
 - clear communication of requirements, functionality, and complexity of the deliverables, whether they are reports, software, training, or documentation.

See also: [www.dataqualitycampaign.org/ Tools and Resources: Lessons Learned: Writing RFPs for State Data Systems](http://www.dataqualitycampaign.org/Tools_and_Resources/Lessons_Learned:_Writing_RFPs_for_State_Data_Systems)