



*The Optimal Reference Guide:*  
**Data Management Strategy  
for States & Districts**

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*Extraordinary insight* into today's education topics

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The chief state school officer or local superintendent needs the right assessment and accountability data, right now — and the data better be right. Teachers and students need academic diagnostic data — on demand. How does the chief or superintendent know if the state has the information technology in place to accomplish both goals? (Information technology is defined as the tools and systems used to share information, e.g., hardware, software, networks, and the processes to manage them.)

Each education agency's technology implementation can be unique. Each one can design the education information system best suited to its own requirements. Individual schools and districts can make personal choices of vendors and software applications. Even with this individuality across schools, districts, and states, each one can be aligned to meet their state's accountability and assessment requirements as well as those of No Child Left Behind. There is not one technology solution that fits all schools, districts, and states.

States struggle with the "**Education Technology Local Control Conundrum**," which is:

*How can local decision making about technology coexist with the requirements of a standardized state and national accountability system?*

**Key** **The answer is adopting data and technology standards developed to enable interoperability.** Interoperability is being able to share data electronically across different software applications, different hardware configurations, and different operating systems.

Each state's assessment and accountability systems will be judged on whether or not they provide data that yield maximum value. This is a very important concept, which ESP calls **Max Yield Data**. Every datum in these systems must be evaluated to ensure that it is worth the effort to get it and that it does the job it was collected to do.



*Even though each school, state, and district is unique in the technology they implement to meet their state's accountability and assessment requirements, each entity can align their systems by adopting data and technology standards that enable interoperability.*



## Technology's Role in Assessment & Accountability

Assessment and accountability systems cannot be successful without extensive technology support. Technology to support assessment and accountability requires a comprehensive, standards-based data exchange process (interoperability). There must be a smooth, timely movement of data from schools to districts to states, and on to the U.S. Department of Education (ED) with appropriate public access at each point. In 2003, ED's Performance Based Data Management Initiative (PBDMI) successfully piloted a process for electronic state-to-federal data exchange. (See [www.espsolutionsgroup.com/PBDMI](http://www.espsolutionsgroup.com/PBDMI).) PBDMI and its data resource, the Education Data Exchange Network (EDEN) were developed using requirements described by the states themselves — requirements that leverage the capacity of each state to report data to the federal government or to efforts such as the Broad Foundation's partnership with USED (School Information Partnership, SIP).

To maximize data-driven decision making (D3M), every state's mandated assessments must be administered, scored, reported, and acted upon within a cycle time of weeks contrasted with the months states took for less comprehensive assessment programs in the past. Mandated accountability reports must be compiled and published in an even shorter time to allow parents to make informed school choices, districts to make decisions on school improvements, and states to make school ratings.

All this must be accomplished with better data than states had before No Child Left Behind. The technology for all this is ready to be put into action.

A state must apply resources to technology-based solutions, because there is no other alternative that can deliver assessment and accountability reports on time. This makes technology's role in assessment and accountability that of providing the tools and the infrastructure through which data can flow quickly, accurately, and securely.

## The Vision for Our Data



Burden, redundancy, expense, lost productivity, lack of comparability, distrust, late reporting and other negatives have characterized education data for decades. Today's goal is to achieve **Max Yield Data**. Max Yield Data simply means data that everyone agrees are worth the effort. Imagine teachers, school administrators, program managers, and central office staff all agreeing that a required report yields such useful information that all the effort put into the collection and reporting of the data is worthwhile. Max Yield Data have been standardized, collected, and presented such that the maximum use can be made of them for decision making and reporting mandates. Reaching this goal demands high quality, managed accessibility, certification (sign-off that the data are correct and ready to use), interoperability, utility, affordability, and granularity (a level of detail that allows analysis and interpretation). (Ligon, 2003, Best Practice for a State's Education Information System, presented to chief state school officers, Lake Tahoe, NV.)

The mantra of reformers in the education data world as characterized by the members of the Council of Chief State School Officer's (CCSSO) Education Information Advisory Committee (EIAC) has been "collect the data once and use them many times, by many people, for many purposes." This has been the objective of states' and ED's efforts to automate data collections and to build data repositories.

## Steps to Achieve Max Yield Data

States and districts have followed four steps to successful implementation of significant improvements in their technology supporting assessment and accountability information systems.

- Step 1. Evaluate the Current Status:** A framework for this evaluation has been defined based upon direct involvement with and documentation of major efforts by states. Among the pioneers are Florida, Nevada, and Texas. In the latest generation with some new ideas are Iowa, Massachusetts, Mississippi, Oklahoma, Nebraska, Virginia, Wisconsin, Wyoming, and others. A self-assessment may be a good start, but tapping expertise beyond a single state education agency has been the typical approach. The National Center for Education Statistics sponsors a personnel exchange that has helped states share their expertise. A common approach has been to hire professional consulting firms for formal, independent evaluations.
- Step 2. Identify the Gaps:** The difference between the findings of the evaluation and the benchmarks established through documentation of best practices across states provides a roadmap for improvement. This analysis should include a formal study of the requirements for an agency's unique solution.
- Step 3. Develop a Plan:** From the requirements study, a formal plan with timelines, budgets, and implementation benchmarks should be developed.
- Step 4. Implement the Plan:** This may require a challenging commitment of resources, continual updates, and careful monitoring.



*ESP has led numerous states through the 4 steps to improve their data management strategy.*

## Basics of Achieving Max Yield Data

There are five basic technology-based principles for achieving the Max Yield Data supportive of a state's assessment and accountability requirements. These can be viewed as the technology performance standards for supporting successful assessment and accountability systems.



*Use ESP's 5 basic principles to improve your agency's data management strategy: Get the right data, get the data right, get the data right away, get the data the right way, and get the right data management.*

- 1. Get the right data.** Validity in an accountability system and specifically in an assessment program begins with a precise definition of what is to be measured and what method of measuring it is the most appropriate. No Child Left Behind requires a state's accountability system to be both valid and reliable. In the data world, this means creating common definitions for data elements (e.g., a data dictionary) to ensure that all providers of data report comparable data (same definitions, codes, and periodicity). Getting the right data begins at the school for most education data. Otherwise, nonstandard data (i.e., different definitions, incorrect entry, etc.) can be passed faithfully along throughout the information system, perpetuating the problem.
- 2. Get the data right.** Data quality includes but goes beyond accuracy. As just stated, the data must be right from the beginning. All along the way, the data must be correctly exchanged. The proven way to monitor this is with a set of business rules that describe the format, acceptable values, missing data options, and logical comparisons to prior reports. Automated processes that verify data upon entry contribute significantly to accuracy. On the other end, access to data and formal reports must protect the confidentiality of individuals and be statistically reliable. (Confidentiality and Reliability Rules for AYP in NCLB, available by registering for a My ESP Page at <http://www.espsolutionsgroup.com/login.php>.)
- 3. Get the data right away.** The lag time between testing and availability of the data limits the benefits of assessments and is an Achilles heel for assessments and No Child Left Behind. For any data to be useful and used for decision making, they must be current and timely. This is a major new accountability requirement for many state assessment programs. Cycle times of months to over a year were common prior to No Child Left Behind. Current assessment programs in which steps are linear and sequential (finish testing everyone, clean everyone's data before proceeding, then score all tests at the same time, then analyze results, then report statewide simultaneously, then publish all reports together, etc.) may not be the best model for today.

On-line, web-based testing is an effective best practice. The initiatives in progress in leading states should be watched to learn how to take on-line testing to the scale required for widespread implementation.

A major focus is replacing dissemination with access — making results available on demand rather than pushing them out to everyone at the same time. (Implications for Collecting, Storing, Retrieving, and Disseminating National Data for Education, Ligon, in U.S. Department of Education, National Center for Education Statistics, From Data to Information: New



Directions for the National Center for Education Statistics, NCES 96-901, 1996.)

4. ***Get the data the right way.*** The right way to get data these days is through an automated process. Automated processes can verify data quality and ensure standards are met before data are accepted into the state's information system. States must understand that information exchange processes involve complex systems. For example, examining the complete process flow for student assessments clarifies that schools, districts, states, vendors, delivery services, printers, and web designers all have crucial roles in the process. Improvements at any single point in the flow may not be possible without coordination with other participants.
5. ***Get the right data management.*** The assessment and accountability systems must be managed well to achieve maximum yield from the data. Data management encompasses a broad range of administrative activities, infrastructure components, and policy commitments. A long-range plan for exchanging data should include policies, funding, human resources, enabling legislation, hardware, software, and networking. A policy advisory committee, a data provider group (user group), and an internal agency coordination group should oversee data management.

## Summary

Technology and improved information systems will not make all this happen. ***People will make this happen with the intelligent use of technology.*** Today's technology tools can help solve a district or state's toughest information challenges. These challenges are described here very simply as getting the right data, in the right way, right away, and getting them right in the process. The right data management makes this happen.

States and districts will not be held accountable for the technology they apply to No Child Left Behind. They will be held accountable for deliverables (e.g., adequate yearly progress determinations, annual report cards, diagnostic assessments aligned with academic standards and linked to the state's assessments, etc.) that are dependent upon the efficient use of information technology.

To assess a state's status in acquiring and applying technology to the necessary assessment and accountability components, the correct questions must be posed, measures that yield valid scores must be used, trends across time must be tracked, and benchmarks across states must be established. ED's PBDMI and its data resource, the Education Data Exchange Network (EDEN), will be necessary resources. Emergent national standards for education data exchange (e.g., Schools Interoperability Framework (SIF)) will make the flow of data efficient. With these standards, states will be able to maintain their individualities and still be able to participate in the nationwide improvement of education data for assessment and accountability.

### ***What to do next:***

Download the following additional resources by registering for a free My ESP Page at <http://www.espsolutionsgroup.com/login.php>.

**Whitepaper:** ***A Technology Framework to Support Accountability and Assessment: How States Can Evaluate Their Status for No Child Left Behind***

**Illustration:** ***A Technology Framework for No Child Left Behind Success***

\* **Data Management Strategy for States & Districts** is an excerpt from the complete whitepaper: **A Technology Framework to Support Accountability and Assessment.**





### About ESP Solutions Group

ESP Solutions Group provides its clients with *Extraordinary Insight™* into K-12 education data systems and psychometrics. Our team is comprised of industry experts who pioneered the concept of “data driven decision making” in the 1970’s and now help optimize the management of our clients’ state and local education agencies.

ESP personnel have advised all 52 state education agencies as well as the U.S. Department of Education on the practice of K-12 school data management. We are regarded as leading experts in understanding the data and technology implications of the **No Child Left Behind Act (NCLB)**, **Performance Based Data Management Initiative (PBDMI)** and **EDEN**, and the **Schools Interoperability Framework (SIF)**.

Dozens of state education agencies have hired ESP to design and build their statewide student record collection systems, federal reporting systems, student identifier systems, data dictionaries, evaluation/assessment programs and data management/analysis systems. To learn how ESP can give your agency *Extraordinary Insight™* into your K-12 education data contact Greg Nadeau at (781) 370-1017 or [gnadeau@espsg.com](mailto:gnadeau@espsg.com).

This document is part of *The Optimal Reference Guide Series*, designed to help education data decision makers analyze, manage, and share data in the 21st Century.

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