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POLICY GUIDE

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Using State Data Systems to Create an Information Culture in Education

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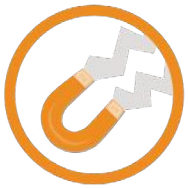
In 1942, renowned statistician W. Edwards Deming wrote that "data are not taken for museum purposes; they are taken as a basis for doing something. If nothing is to be done with the data, then there is no use in collecting any." More than 75 years later, this observation neatly summarizes a persistent challenge: States have more sophisticated education data systems than ever before, yet too many still struggle to use those data to inspire effective action. State leaders can begin to address this challenge by fostering a culture that celebrates data and information as critical to improvement.

In November 2018, Education Commission of the States convened more than a dozen education leaders for a Thinkers Meeting to discuss how states can foster an information culture. Throughout the meeting, participants returned to an overarching theme: It is up to state leaders to ensure that data systems serve the needs of the people involved — students, families, community members, teachers and leaders — rather than narrow, bureaucratic mandates.[1] Participants offered concrete guidance on how state leaders could build a culture to empower diverse stakeholders with the information they need to make critical decisions about education.

Though many of the ideas raised at the meeting are already in motion, at least to some extent in some states, far too many people still lack the information they need to improve education — for themselves, their communities or their constituents. Participants stressed that only state policymakers have the capacity to move beyond these islands of excellence to realize a more coherent statewide vision. This report outlines their insights on how state policymakers can improve the information culture in their states.

What Is a State Education Data System?

Every U.S. state and the District of Columbia maintain a system to collect and store education data. These systems vary widely in their scope and sophistication — and, by extension, in their ability to provide information that can guide decision-making. Most states have developed statewide longitudinal data systems, which establish formal connections among systems from two or more of the following four core state agencies: early learning, K-12, postsecondary and workforce. Such systems make it possible to follow students' progress from early childhood to career.



Developing a Culture That Serves the Growing Need for Information

Participants noted that Americans have grown accustomed to receiving information on demand. They enjoy access to information that can satisfy immediate needs, anticipate coming needs, inform their plans for their future, notify them when they are off track and help them learn from their past behavior. For example, consumers expect retailers to provide information on products that meet their exact specifications. Travelers expect up-to-the-minute information on traffic information, flight delays or alternative routes. People saving for retirement expect predictions of retirement income based on their current investment strategies and time to retirement.

Americans expect similar results from their education data systems. Yet when they ask important questions about education, they can't always get satisfactory answers. Are schools safe? Do they support children's social-emotional learning? Which postsecondary credentials have the most value in the job market? Which early childhood education opportunities are giving students a strong start in school? Do students from low-income families have equitable access to educational opportunities?

Recent trends in education policy and practice have further increased data demand. The trend toward personalized learning requires teachers to receive detailed, real-time information on individual students' interests and needs. The growing need to gauge students' readiness for college and career is prompting states to follow students' trajectories into college and jobs, which requires matching data from K-12 education, postsecondary education and the workforce. The Every Student Succeeds Act requires states to devise plans for measuring students' access to a well-rounded education. The Carl D. Perkins

Understanding the Different Forms of Information

Different questions require data at different grain sizes and different levels of analysis; one type of data or analysis does not fit all needs. States can build their capacity to:

> Provide metrics on the performance of students, schools, the district or state as a whole. Metrics require aggregate data — which do not include personally identifiable information — to provide a current snapshot of how well schools, institutions or programs are serving the people of the state. (Metrics can go beyond test scores or postsecondary outcomes to include data on topics that provide a measure of equity, such as access to courses or programs of study by population.)

> Fuel more robust analytics, such as high school feedback reports or early-warning systems that indicate when students are off track. These analytics require the ability to link data from several data sets; they use complex calculations to provide insights that more straightforward metrics cannot provide on their own.

> Support research that employs statistical controls to suggest causal or correlational relationships that could shed light on the effectiveness of educational strategies.

Career and Technical Education Act requires states to break out data on participation and performance in each career and technical education program of study by race and ethnicity, among other categories.

According to participants, state leaders face a tidal wave of demand for information they have never previously been asked to provide. They need robust systems for collecting and analyzing data to respond to this tidal wave, but data systems are not enough if states lack the culture to ensure that those systems serve people's increasing — and increasingly varied — need for information.

Serving a Multitude of Customers

Different questions require different kinds of information. Real-time data on individual students can support personal instruction. Longitudinal data on a group of students can trace the progress of a single group of students from kindergarten to career. A true information culture is also a culture of customer service, serving a variety of people with an even greater variety of needs.

Participants devoted extensive discussion to different customers' needs for education information and how states can serve those needs. They identified a variety of critical questions, along with the data required to answer the questions and the constituents most likely to ask the questions. Several representative examples are provided here.

Do students have access to courses or programs of study that reflect their interests or prepare them for the future?

What type of information is needed to answer the question?

- School-level analyses of data from states' course information systems, which typically include course offerings by school.
- Postsecondary outcomes (such as employment or earnings) by institution and major, workforce development program or other credential.

Who needs the answer, and why?

- Students of all ages (and their parents or guardians, if in K-12) who need to choose schools or advocate for better course offerings.
- State and local policymakers who aim to promote equitable educational opportunities through carefully directed policies and resources.

Do schools offer safe and supportive environments?

What type of information is needed to answer the question?

- School-level analyses of states' school climate survey and discipline data.

Who needs the answer, and why?

- Students and their parents or guardians who need to choose schools or advocate for improvements at their neighborhood schools.
- Educators who want to diagnose and address specific problems.
- State and local policymakers who must design policies or direct resources to improve school climate and safety.

Are individual students making good progress? If not, what interventions can get them back on track?

What type of information is needed to answer the question?

- Real-time student-level information, such as attendance records, course taking patterns, in-class and year-end assessment data, and discipline data.
- Analyses that forecast students' likely outcomes — such as high school graduation or college success — using past and current performance data.

Who needs the answer, and why?

- Students, parents, guardians and educators who can gauge progress and intervene at the first signs that a student is falling off track — rather than after students repeat a year, fail to take courses they need or drop out of school. *They would be the only people privy to these data.*
- Educators who personalize instruction for students with different needs to meet state standards and students' personal goals.

Which schools or courses of study best prepare students for college and the workforce?

What type of information is needed to answer the question?

- Results of research following the progress of student cohorts from schools to postsecondary institutions and the workforce to determine if high schools prepare their students for life after graduation.

Who needs the answer, and why?

- Students, parents or guardians looking for information on classes or credentials that are most likely to prepare students for success.
- School leaders who aim to measure the effectiveness of their programs and make changes where necessary.
- State and local policymakers who aim to design policies or funding streams to support the most effective pathways to college and career success.

What educational programs or teaching practices are most effective?

What type of information is needed to answer the question?

- Analyses, research or evaluation using student- and classroom-level data to examine relationships between educational programs, curricula or teaching strategies on the one hand and students' outcomes on the other.

Who needs the answer, and why?

- Teachers and school leaders who seek to improve current programs and practices or select new ones.
- State and local policymakers who want to maximize the return on their investments in educational programs.

This list of questions, and the stakeholders who need answers to them, is by no means exhaustive. Participants pointed to many others. Regardless of the specific question asked, one thing was clear: If states use their data systems merely to serve limited state or federal reporting requirements, then they may fail to serve most of their constituents' needs.

An Unfinished Data Revolution in Education

Participants acknowledged the dramatic improvements in state education data systems since the beginning of the millennium. Between 2005 and 2015, for example, 47 states, the District of Columbia and three U.S. territories received $721 million in federal funds to develop statewide longitudinal data systems to help assess student needs and follow student progress from preschool through career.

At their best, participants said, these systems help ensure that students have equitable and robust opportunities for success in work and life. They help state leaders build a culture where students, parents, educators, policymakers and other education stakeholders receive the information they need to answer their questions and make good decisions. Such a culture can also encourage trust in leaders' decisions by promoting transparency in the decision-making process.

Yet participants also felt that too few states meet this promise. As important as robust state data systems are, in the absence of a true information culture, they become ends in themselves and do little to drive improvement.

Participants pointed to common challenges that prevent a culture of information and evidence:

- **Lack of vision.** Not enough states promote a forceful overarching vision for what data and information should accomplish and for whom.
- **Fragmentation.** States' existing data systems are too often disjointed, developed across different agencies to meet a variety of narrow and sometimes outdated mandates.
- **Lack of capacity.** State education agencies commonly lack the staff and/or resources to turn data into actionable information and communicate that information in a timely way.
- **Lack of access.** Much of the data states collect are never used or reported.
- **Inadequate funding.** States often lack coherent funding streams to build and sustain an information culture.

When the infrastructure for education information is a collection of data systems that are little more than the residue of mandates and disconnected funding streams, it can breed public distrust of education data. Participants felt strongly that leaders need to take responsibility for creating a healthy information culture that permeates state agencies.

No state can create such a culture overnight. Instead, leaders must work with other stakeholders to create the conditions and invest in the capacity to sustain that culture.

What State Leaders Can Do to Build an Information Culture

Participants discussed concrete steps state leaders can take to ensure that state data systems serve constituents, offering the following suggestions for addressing each of the cited challenges.

- **Develop a vision.** Use the mantle of leadership to champion a coherent and compelling vision for education data.
- **Foster coherence.** Forge stronger links among different data systems.
- **Build capacity.** Build states' capacity to turn data into information.
- **Improve access.** Ensure broad, public access to data and information with appropriate privacy protections.
- **Increase funding.** Invest in making data and information a priority.

Develop a Vision

Use the Mantle of Leadership to Champion a Coherent and Compelling Vision for Education Data

Without a unified, statewide vision, the data systems that states build to respond to narrow reporting requirements or other mandates end up focused on disjointed demands that may be out-of-date or irrelevant. Such systems often lack the power to combine disparate data sets and therefore cannot support the state's policy priorities with richer context and insights.

Public distrust grows in this vacuum. Americans have understandably worried that data will be used to shame schools or students for performing poorly, reveal students' private information or reduce children to test scores. Such concerns can fester in the absence of a vision for how information can benefit students, families and communities.

Leaders can use their bully pulpit to champion a statewide culture that values information and data as indispensable to their constituents' well-being. They can publicly demonstrate the value of robust education information by avidly using data and information to set state goals, agendas, programs and policies that create opportunities for their constituents. Leaders can support state actions that empower everyone in the state to tap into and use information drawn from state data systems.

Show, don't tell

Terms like "statewide longitudinal data systems," "data quality," "data warehousing" or "interoperability" are not likely to capture the interest of most educators or policymakers, much less the broader public. Instead, in their communications to constituents, leaders need to focus on people — their constituents' information needs and questions. Stories about how information changed people's lives can build demand for information of high quality.

Gubernatorial Leadership in Maryland

Participants said the work of calling for better education information in a state starts at the top. Several pointed to the example of **Maryland** Gov. Martin O'Malley, who publicly advanced a vision for better education information and rallied education, workforce and legislative leaders around a plan for the **Maryland** Longitudinal Data System. Their efforts led to legislation that created a data governing board, representing the diverse state agencies from early childhood through college and the workforce. **Maryland**'s is one of the nation's leading education and workforce data systems. O'Malley summed up the governor's role: "This isn't a technological problem," he said in 2012. "This is a political problem, and in order to solve that political problem, you need the chief political power, the executive, the governor in every state, to bring together the people from your K–12, from your local school boards, from your colleges and community colleges, lock them all in one room, and insist that all of this data flow on one gauge of railroad track."

Create a culture of trust and transparency

Leaders can demand more transparency in which data their states collect, why they collect them and who has access to them. Transparency builds trust; communication about why data are being collected and how they will be used can also help residents understand how data can help them. Leaders should also consider annual reviews of policies that protect the security of the data to minimize the risk of breaches that can violate students' privacy and erode public confidence.

Incorporate data leadership positions into the state and agency leadership structure

When states treat data collection and analysis as a lesser function, they struggle to maintain a compelling vision for education data. Yet state-level education data professionals often find themselves responding to leadership decisions rather than contributing to them. If chief information officers join the leadership team of state departments of education, they can be empowered to integrate the development and analysis of information into the core of state decision-making.

Foster Coherence

Forge Strong Links Among Different Data Systems

Because many states oversee a profusion of data systems that are narrowly focused and unable to interact with one another, data on a single resident of a state can be scattered across many separate systems maintained by different agencies governing areas as diverse as education, social services and workforce. Even a single agency, such as a state education agency, may maintain separate systems for information on students, courses, teachers, early childhood education and career and technical education. In addition, the appropriate desire to prevent unauthorized access to the data has sometimes given rise to state privacy policies that solidify these silos, limiting states' ability to link data from existing data sets, even when it is legal and appropriate to do so.

Break down the barriers that separate data silos

In some states, different data systems are not interoperable, which means they cannot seamlessly and securely exchange data with one another.[2] Participants felt that, to offer a fuller picture of students' well-being and progress, states should address the interoperability challenge by fortifying links among data systems. As leaders work to create the political climate required to overcome barriers to data-sharing across systems, they must concurrently work to create the technological conditions for a more coherent data culture with standard procedures to permit data-sharing while protecting privacy.

Participants suggested several strategies for doing so:

- Create a longitudinal data structure, one that makes it possible to follow individual students' progress from early childhood to career. Longitudinal structures link data systems for early childhood education, K-12 education, postsecondary education and the workforce. By the end of 2016, 16 states had connected all four data systems, and 37 had connected at least two. State capacity has grown dramatically over the past decade, but many states still have far to go before they can link limited, but critical, data that provide insights into students' trajectories through school and work.
- Link education data systems with others in areas outside of education, such as health and human services, foster care or juvenile justice. Such connections can better equip schools and their communities to address such non-academic challenges as homelessness or health problems that can affect students' academic performance. They can also help states disrupt the school-to-prison pipeline. States must take great care to protect this sensitive information.

Rhode Island's DataHUB

Rhode Island's data system, RI DataHUB, connects data among all four educational systems and includes economic, health, civic engagement and justice data. RI DataHUB's Data Stories feature a variety of examples of the direct applications of student data. Each story uses collected data to explore real-world issues. For example, the data story, "The Educational Costs of Unhealthy Housing," combines education and health data to examine the impact that home environmental hazards such as lead poisoning can have on student performance.

- Take advantage of external resources to make state data systems more interoperable. State leaders do not have to start from scratch. The U.S. Department of Education's National Center for Education Statistics oversees a growing list of Common Education Data Standards, a set of common education data elements that facilitate the exchange of data within and among states. Similarly, the nonprofit Ed-Fi Alliance offers a set of data rules and definitions that "allow ... education data systems to connect." Such resources can make it easier for systems to talk with each other and more quickly generate insights to inform decisions.

Interoperability in Michigan

A group of school districts formed the **Michigan** Data Hub in 2015. With Ed-Fi, the districts created a data system that allowed for true interoperability without requiring districts and schools to replace their existing technologies. By implementing the Ed-Fi data standard, **Michigan** was able to collect and connect data across schools and districts, as well as with other states in the Ed-Fi Alliance.

Create governance structures that sustain the state's information culture

Governance structures that span multiple state agencies can sustain the links among different state education data systems and ensure that they address common goals. At their best, such structures establish formal, transparent procedures; ensure that no single agency dominates (and therefore limits) the state's efforts; advance shared research agendas that support state priorities; and foster consistent responsibility for a state's data systems.

Data Governance in Kentucky

Kentucky's Center for Statistics is a data governance body that collects and connects data to evaluate the commonwealth's education and workforce efforts. It publishes information and reports to help policymakers, agencies, and the public make informed decisions about education — focusing on issues such as expanding access to data, tracking labor supply and demand and evaluating the impact of education and workforce programs over time. Its five-member board represents agencies overseeing K-12 education, postsecondary education, professional standards for educators and workforce development.[3]

Build Capacity

Build States' Capacity to Turn Data Into Information

Even states with sophisticated data systems often lack the people and other resources they need to meet demand for reliable, relevant and actionable information. Further, educators who must use the data lack the training they need to use data effectively. Participants suggested the following solutions to these challenges:

Support the people who collect and analyze the data

Building a data system without investing in the people who make it function is like building a state-of-the-art hospital but skimping on doctors and technicians. Participants offered a different vision:

- Offer professional development for staff who are responsible for collecting data, from the state education agency to schools or colleges. Teachers and administrative assistants inhabit ground zero of any education data system. They are often responsible for collecting and entering the information about students, teachers or courses that forms the bulk of any state's data store. States should invest in technology and training to make entering data easy, automated, accurate and efficient.
- Enhance the state education agency's capacity to analyze data, so that states can offer far more than the bare minimum of information required for compliance with state or federal mandates. States need more specialized staff to analyze data, prepare internal reports, respond to external data or research requests, and maintain the quality of the data.

Build educators' capacity to use the data

Teachers and school leaders need formal guidance on how to use information to address students' individual needs, intervene when students are going off track, determine which teaching strategies have the most impact or identify the support teachers need most. Because small districts often lack the resources to support such training, they may need training materials or other support from the state.

Such training and support can pay off by creating front-line ambassadors for education data systems. If teachers find data collection onerous and data systems unhelpful, parents will hear about it and view them with distrust. If, on the other hand, teachers see the value of a state's information culture, they will likely pass that perception on to parents as well.

Data Training for Georgia Educators

The **Georgia** Department of Education established a Statewide Longitudinal Data System Training Team that provides comprehensive training for all the state's 120,000 teachers on several data system applications. The number of unique requests educators made of the system soared from roughly 250,000 in 2013 to more than 94 million in 2018.[4]

Tap into outside partners who can transform data into information people can use

Participants noted that a state's information culture can benefit when third-party organizations step up to serve constituents' diverse needs for information. Sometimes third parties work on their own to address shortcomings in the state's data offerings. At other times, states collaborate directly with third parties to increase their capacity for addressing the need for information.

- Support research consortia that give trusted researchers access to both aggregate and student-level data, when necessary and legal. (Such researchers can be independent or affiliated with think tanks, advocacy organizations or universities.) Participants noted that such consortia can enhance states' research firepower and help states address questions tied to their priorities for policy and practice.

The Tennessee Education Research Alliance

TERA is a partnership between Vanderbilt University's Peabody College of Education and the **Tennessee** Department of Education that uses research to inform the state's school improvement strategies. Participating researchers at Vanderbilt and other universities use the state's longitudinal data system to examine such issues as teacher professional development, school turnaround strategies and the supply of teachers. For example, TERA's research for the Instructional Partnership Initiative has highlighted teacher collaboration strategies that can improve student outcomes. TERA strives to maintain a true collaboration between the university and the state. A former assistant commissioner for data and research at the department of education is TERA's executive director, and a steering committee of Vanderbilt faculty and state officials works with stakeholders across the state to set the research agenda.

Collaborate with outside organizations that work independently of states to turn data into information. Participants pointed to examples of organizations that created their own data dashboards to complement or extend the state's information systems. They also noted that third parties can often avoid political challenges or turf issues that can hamstring state agencies. Outside groups can have more freedom to be bearers of challenging news.

Texas 2036

Texas 2036 seeks to" empower Texans and their government to make informed decisions using data and a long-term strategic plan to sustain **Texas** as the best place to live and do business." It has released the first version of dataplatform.texas2036.org, which provides free access to more than 300 datasets in such areas as education and workforce, health and human services, infrastructure, natural resources, justice and safety, and government performance. **Texas** 2036's education and workforce reporting tool links public high school and postsecondary education data with workforce data to track the state's progress in preparing students for postsecondary success and the workforce.

Improve Access

Ensure Broad, Public Access to Data and Information With Appropriate Privacy Protections

Too many state data systems are impenetrable to the students, families and communities whose lives they are meant to improve. Participants had the following suggestions to address this challenge:

Communicate information in ways that are accessible and relevant to a lay audience

Participants underscored the need to make information drawn from state data systems clear and accessible to broad audiences. People who are not data professionals need tools — such as clear, interactive data dashboards that show how well schools are serving their students — to help them use the information. Public dashboards are naturally limited, however, in how much information they can present. As states design them, they should engage the public to determine the dashboard's priorities. In **Illinois**, for example, public demand for information on the arts prompted state leaders to consider including an arts indicator on its accountability dashboard. Other less conventional vehicles — such as social media, blogs, newsletters, articles and road shows — can be more likely to reach people than state agency websites or policy reports.

Give students and parents access to their personal data

Students and their families also need secure access to password-protected portals or dashboards that provide timely and useful information about their own — or their children's — individual academic progress, along with recommendations on how to improve their performance. States could provide data backpacks that allow students or parents to share their information with after-school providers, tutors or others who provide them services.

Utah's Student Achievement Backpacks

In 2013, the **Utah** legislature passed a measure, S.B. 82, giving parents and guardians access to a virtual backpack containing their children's secure educational records and data. That backpack will remain with students throughout their education, and it gives parents or guardians a measure of control over who can see the information.

Offer public access to de-identified data for analysis

Dashboards and portals need not be the only avenue to a state's data. Participants suggested that states can also improve public access to de-identified data by making them available for advocates and researchers to download and analyze themselves. (State data systems would, of course, have to follow federal and state requirements for protecting personally identifiable information.) One participant noted that public and private funders of health care research commonly require researchers to make their data publicly available for other analysts and researchers.

Virginia's Education Datathon

Virginia is sponsoring a 2019 Datathon devoted to "Using Data and Analytics to Promote Equity in K-20 Education." Modeled after hackathons that bring large numbers of computer programmers together to create innovative technology solutions, the datathon will convene "individuals from government, higher education, private industry, and non-profits to take new and existing datasets and turn them into actionable information." Teams will compete to analyze "non-sensitive, de-identified data" to create the most innovative and promising strategies for promoting equity.

Foster short-term wins while considering more visionary goals

Even states with less-developed education data systems can use those systems to share compelling information with the public. Participants suggested that a sample of such information, however small, can drive public demand for more information and win broader support for investments in data systems.

Increase Funding

Invest in Making Data and Information a Priority

Participants pointed to incoherent and unreliable funding streams for education data as an impediment to a healthy information culture. Federal grants (and, to a lesser extent, philanthropy) have fueled some progress over the past two decades, but this has meant that many state systems rely on limited funding sources tied to narrow and fragmented reporting requirements. Maintaining a robust culture of information and evidence will depend on consistent and sustained investments of state funds.

Throughout the Thinkers Meeting, participants noted that solutions they recommended would require state resources. States need annual appropriations to maintain and improve their education data collection systems, strengthen the links or data-sharing capacity among different systems, fund governance structures, support analytical staff within state agencies, create dashboards or other communications strategies, and provide ongoing training on how to use data effectively. To help available dollars go further, states can consider consolidating existing, disparate funding sources that serve narrow data needs into single funding streams aligned with state data priorities.

State budgets can be among the clearest statements of states' priorities and values. Participants felt that budgets should reflect the importance of sustaining a culture of information and evidence.

Critical Roles for State Leaders

State leaders across agencies and sectors should first model what a strong culture of information and evidence should look like. They should use data in making decisions; cite data in explaining decisions; and make data and information available to their partners, colleagues and employees. The following common themes emerged in participants' discussions of the additional roles leaders can play.

Governors' Offices

Governors command a bully pulpit and can work across different state agencies and sectors. Participants suggested that they:

- Use their influence to bring policymakers, education and workforce leaders, business leaders, community and civil rights organizations and other vital players to the table to forge a vision for how better, more timely information can promote the state's priorities and support its residents.
- Advance governance structures to sustain partnerships among agencies and sectors that can realize the vision. Hold these agencies and leaders accountable for ensuring that data serve the people of the state.
- Publicly and continually make the case for creating and maintaining a culture of information and evidence in their states.

State Legislatures

State legislators can strengthen infrastructure, incentives and resources for an information culture while removing legislative barriers to that culture. Participants suggested that they:

- Promote legislation to improve states' infrastructure for data and information by strengthening links among data systems, fostering better data-sharing measures, establishing data governance structures or creating tools such as early-warning systems.
- Improve real-time access to data and information for multiple audiences, from parents to policymakers, while upholding important safeguards for private data.
- Remove legislative barriers to a strong data culture, such as artificial walls between teacher and student data systems; prohibitions barring state agencies from holding any personally identifiable information, regardless of safeguards; or any other law that impedes the reasonable flow of data without appreciably strengthening privacy protections.
- Use the power of the purse to fund continual improvement of the state's data infrastructure and measures, such as training and communications, to ensure that people use the data to improve education.
- Regularly audit all education and workforce data collections and minimize burdens by ending those that are no longer necessary.

- Annually review and update all data security and privacy laws to ensure that they adhere to best practices. Ensure funds to train those who work with data across the state in these best practices.

State Education and Workforce Agencies

Leaders of state education and workforce agencies are home to the data and systems that make up a state's education information infrastructure. They determine much of what and how data are collected and reported. Participants suggested that they:

- Build the data and information function into the core of the agency's leadership structure. For example, include chief information officers or their equivalents in top leadership teams that set the agency's direction.
- Build bridges with other agencies to ease the flow of data.
- Dismantle silos, which can hamstring efforts to create coherent data and information strategies, within and across agencies. Such efforts may include disassembling old hierarchies, combining funding streams and restructuring work protocols.
- Offer districts such support as tools for monitoring students' progress, training on how to use data effectively and more streamlined data submission protocols to ease their reporting burden. Such state-level support can promote equity, as districts with limited capacity often lack the resources to create training or tools on their own.
- Provide research to the public on issues vital to the state's priorities, such as the impact of its education and workforce policies, the effectiveness of curricula or professional development, the outcomes of school interventions or the effect of social services on education outcomes.
- Actively communicate about data. Consider getting information into the hands of end-users through such creative means as social media, dashboards, portals, blogs and presentations.

Final Thoughts

Over the past two decades, states have dramatically upgraded their data systems and built bridges among systems that once sat isolated in different state agencies. Participants recognized the promise of these developments, yet they worried that the new data systems could amount to less than the sum of their parts. Data systems alone will not ensure people timely access to the information they need. It will take leadership to build and sustain a culture of information and evidence.

Authors

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Claus oversees efforts to improve statewide longitudinal data systems and provide state-by-state data on STEM education. He has held senior positions in education policy and research for more than 17 years and has spent much of that time helping diverse stakeholders find consensus on important education issues. Claus is dedicated to ensuring that state leaders have the information and guidance they need to make the best possible decisions affecting young people. Contact Claus at cvonzastrow@ecs.org or **202.844.6282**.

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THINKERS MEETING PARTICIPANTS

Education Commission of the States Thinkers Meetings convene national education leaders to identify best practices states can adopt to improve education. This report does not present a consensus among all the participants in the meeting. Rather, it offers an overview of the meeting's major themes and recommendations.

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ENDNOTES

1. In this paper, "students" refers to learners of any age, from preschoolers to adult workers seeking new job skills. "Education" denotes any sort of learning from early childhood through workforce training.

2. Zeke Perez, 50-State Comparison: Statewide Longitudinal Data Systems (Denver: Education Commission of the States, 2016), https://www.ecs.org/state-longitudinal-data-systems/. Longitudinal data systems allow educators and researchers to trace students' trajectories from their earliest years into adulthood, helping them identify educational experiences or programs that have the greatest impact on students' later prospects.

3. For more information on data governance structures, along with examples from Kentucky, Maryland and Washington, see *The Art of the Possible: Cross-Agency Data Governance Lessons Learned from Kentucky, Maryland, and Washington* (Washington, DC: Data Quality Campaign, 2018), https://dataqualitycampaign.org/resource/art-of-the-possible-data-governance-lessons-learned/.

4. Bob Swiggum, Georgia Department of Education, in email communication with the author, January 31, 2019.

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