DATAQUALITY CAMPAIGN
Using Data To Improve Student Achievement
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# Using Linked Data to Drive Education and Training Improvement

*To address key policy and programmatic questions and help improve student and system performance, states must work to link data across the early childhood, postsecondary and workforce (P–20/workforce) spectrum and share this information with appropriate stakeholders. This issue brief highlights current efforts in California, Florida, Indiana, and Texas to inform decisions, policies and practices by using data that are linked across multiple sectors. The lessons and experiences highlighted below are intended to help inform states' efforts to build interoperable data systems able to provide more robust, timely and actionable information to all stakeholders.*

**HIGHLIGHTS**

In this brief, learn more about:

- How the following four states are using linked cross-sector data to inform decisions, policies and practices:
  - California (Cal-PASS),
  - Florida,
  - Indiana, and
  - Texas.
- The policy conditions, governance structures, and privacy measures states have instituted to be able to link cross-sector data.
- Further reports and resources on sharing data across agencies to improve data use and student success.

*There is no single way to use linked data; states are finding myriad ways to use these data to best meet their needs. As states continue to innovate around sharing and using linked data, this issue brief will be updated to reflect new developments.*

# CALIFORNIA (CAL-PASS)

*Leveraging linked K–12 and postsecondary data to improve educational practices*

## Data Use

**Why did your agency/organization begin linking data across agencies and sectors? What is the impetus behind this work?**

Cal-PASS started as a regional project in San Diego and Imperial counties in 1998. It enabled the sharing of student unitary records, completely privacy act compliant, between K-12 schools, community colleges and universities to improve instruction and better prepare students for their next educational level. In January 2003, the project received state funding to implement Cal-PASS statewide. Since 2003, the Governor and the State Legislature have supported Cal-PASS with ongoing, systemic funding of approximately $1.1M annually. In addition, Cal-PASS receives support from private foundations; Cal-PASS's current annual budget is approximately $3.5M.

**What are some of the policy and programmatic questions or issues you hoped to address through the use of linked data?**

The policy and programmatic questions Cal-PASS hoped to address through the use of linked data include:

- What remedial needs do students experience as they move through various education transition points?
- What are the most efficient pathways to college graduation?
- Where are the leakage points across the K-16 educational pipeline?
- Does alignment of curriculum from high school to college result in better student outcomes?
- What is the relationship between a student's program of study and the industry in which he or she ends up working?

**How are the linked data being used?**

Ways in which data from the Cal-PASS system are being used include:

- Supporting the work of Professional Learning Councils (PLCs) [1]. Data are shared at PLC meetings to facilitate conversations that help improve students' access to equally rigorous courses. Using data, PLCs are able to identify inconsistencies in course rigor across schools and to leverage these findings to begin conversations about improving course rigor across schools and districts. To date, professional Learning Councils have used data to determine student transition and success in Algebra 1 courses. Based on these results, PLCs have worked to deconstruct Algebra 1 standards to enhance faculty knowledge regarding the appropriate level of course rigor as it relates to Algebra 1, resulting in better student outcomes. Subsequently, math PLCs across the state have deconstructed Algebra 2, geometry, and calculus standards.
- Supporting a standards alignment process. Regional consortia are working on aligning standards across the region from high school through postsecondary. For example, San Diego State University, the Grossmont-Cuyumaca Community College District and the Grossmont Union H.S. District have worked together to align San Diego's education standards.
- Determining the educational outcomes for youth in foster care. This work was made possible through the linking of Cal-PASS data to social services data.

[1] Professional Learning Councils (PLCs) are groups of discipline specific faculty (e.g. math, English, ESL/EL) from local middle school, high school, community colleges and universities who meet monthly to review transitional data for students in their region and engage in ongoing conversations about how to change outcomes. These discussions result in action plans/innovations which are implemented and then evaluated. To date, there have been 28 innovations. The results are posted on the Cal-PASS website.

- Studying student mobility (a.k.a. "swirl"). In the LA basin, for example, these data enable school administrators to look at enrollment and course-taking patterns to determine if students are co-enrolled in other schools due to limited course offerings as well as better understand reverse transfer patterns.
- Automating a transcript transfer system. A linked data system allows for the transfer of student transcript information which reduces the number of students who mistakenly retake classes at the postsecondary level. This, in turn, frees up some postsecondary institutions' resources enabling them to expand course offerings.

**What is the impact on your work of having these linked data?**

Cal-PASS has been able to use linked data to do the following:

- Track student outcomes that are a result of instructional innovations. This work has allowed Cal-PASS to identify successful instructional innovations and, by extension, find ways to bring those innovations to scale.
- Demonstrate to the appropriate entities the efficacy and policy implications of the work.
- Provide data to institutions so they can use the data to manage enrollment, identify successful practices and finds ways to expand successful practices across the institution or system.

**What are the next steps in this work? In what other ways do you hope to use linked data?**

Cal-PASS is looking at going deeper in its connection between education data with both social services data and workforce outcomes.

## Establishing Linked Data Systems

**What were the policy/political conditions, if any, in your state that made this work possible?**

As a separate organization, Cal-PASS is able to facilitate cooperative work between and among districts and postsecondary institutions because Cal-PASS is able to develop new relationships rather than just manage old, and not always positive, relationships between various stakeholders.

**What is your data governance structure? Who is involved, and what are their responsibilities?**

Cal-PASS has developed MOUs with the various agencies and districts regarding the collection, maintenance, and linking of data. It is important to note that this arrangement is voluntary; each participating district signs individual agreements with Cal-PASS and identifies with whom they want to share data.

**What agencies are currently linking and sharing data?**

Data are being shared between the K-12 and postsecondary sectors. Cal-PASS plays the central role in linking and making these data available to stakeholders in both sectors.

**What privacy and security measures have you put in place?**

Prior to sending data to Cal-PASS, sites and district offices institute their own data security measures by encrypting unitary data.

Once at Cal-PASS, the privacy and security measures Cal-PASS have instituted include the:

- Encryption of students' social security numbers.
- Restriction of access to data to specific project personnel.
- Creation of a unique identifier for schools that do not collect a SSN. Cal-PASS creates unique "Keys" that are portable across the educational segments allowing the data to be linked K-16. These unique keys are fuzzy matched across sectors. Cal-PASS's match rate is as high as 97%.
- Implementation of strict procedures around the destruction of data after matched tables are generated.

**What were the biggest challenges you faced in establishing these links? How did you overcome them?**

The biggest challenges Cal-PASS faced in establishing and using these links included:

- Determining how to gain access to UI wage records to begin linking education and workforce data. Cal-PASS has been able to link several quarters of data and is in the preliminary stages of this work.
- Balancing the utility of the data with privacy concerns and requirements, particularly with regard to programs with a limited number of students.
- Addressing the lack of specificity in data collected. For example, if a student gets a degree in accounting and ends up working in agriculture, the data are not able to tell whether the student works as an accountant in the agriculture industry or is doing something unrelated to his or her field of study.

**How are you helping to ensure interoperability between and among systems?**

To foster interoperability between and among systems, Cal-PASS established a data dictionary of common elements that cross sector boundaries. The real key to interoperability is the matching of records. Cal-PASS "Keys" are easily derived from common elements but are encrypted for privacy.

# FLORIDA

*Leveraging linked P–20/ workforce data to increase systemwide efficiencies*

## Data Use

**Why did your agency/organization begin linking data across agencies and sectors? What is the impetus behind this work?**

Florida began linking data in response to the release of a series of studies by legislative committees and gubernatorial taskforces in the early 1980s. These studies questioned how effectively the education sector (K20) and the workforce preparation infrastructure were meeting the needs of those seeking work and the needs of employers seeking employees. These studies led the Florida legislature and governor to pass legislation that required collaboration between the Florida Department of Education (FLDOE) and the workforce agency in providing a single automated follow-up system within the FLDOE.

**What are some of the policy and programmatic questions or issues you hoped to address through the use of linked data?**

The policy and programmatic questions that have been addressed through the use of linked data include:

- What kinds of jobs did former students from various education levels attain? What were their earnings? How did their employment experiences reflect the needs of the state's economy?
- How could job information on graduates better inform programmatic and budgetary decisions by agencies and entities throughout the state?
- How could jobs information be integrated into the K-20 funding decision processes?

**How are the linked data being used?**

The ways in which the linked data have been used include:

- Informing the legislative funding processes (performance based budgeting and funding) for CTE, Adult Education, Community Colleges, Universities, and the Financial Aid policies of independent colleges and universities.
- Justifying the continuation or changing of program offerings utilizing jobs information.
- Supporting initiatives and reporting requirements related to public assistance reform, correctional education, and education accountability measures related to children in foster care as well as children that were aged out of foster care.

**What is the impact on your work of having these linked data?**

The ways which linked data have helped change the culture around data use in Florida include:

- Streamlining the process by which agencies and other stakeholders can get and provide information. There is now a single destination for those with research/information requests and there is a common data set with common definitions related to employment.

- Fostering more effective and efficient ways for agencies to work together. For example, FLDOE helps other agencies meet their reporting requirements in exchange for allowing FLDOE access to data.
- Informing funding and budgeting decisions by both the executive and legislative branches.
- Fostering closer collaboration between educators and employers at all levels. For example, using linked data from FETPIP, FLDOE was able to identify Florida employers that were employing a substantial number of high school dropouts. These findings led the Commissioner to reach out to these employers to develop strategies that would re-engage these students and put them on an adult education track.
- Revising the role of Florida's community college system. Linked data have helped policymakers and the business community to gain a better understanding of the community college system's role in helping adults and recent high school graduates prepare for life in the workforce. The business community was able to better understand the types of jobs students obtained and the skills they had acquired. These data also enabled policy makers to develop both short-term and long-term visions for the community college system, to help define what works, the future role of community colleges, as well as the means to hold community colleges accountable for student outcomes.
- Informing middle and high school career counseling efforts. The linked data are fed into career and curricular guidance tools to help individual students, starting in grade 8, make more informed decisions about their future.
- Increasing opportunities for data-informed decision making. Florida's postsecondary institutions have received funding to use longitudinally linked data to help inform federal policy and programmatic decisions.

**What are the next steps in this work? In what other ways do you hope to use linked data?**

The next step is to develop mechanisms that can be used in conjunction with FLDOE's statewide longitudinal data systems to predict how particular elements of the K20 education system and the workforce development system combine to provide stable, remunerative, and ever-improving employment opportunities for students and those currently in the workforce.

## Establishing Linked Data Systems

**What were the policy/political conditions, if any, in your state that made this work possible?**

The political conditions that made this work possible grew out of a number of legislative and executive inquiries related to the preparation of workers for Florida's economy. Simply put, Florida's stakeholders wanted to know how well students were being prepared and how their preparation could be improved. The system has been sustained by providing policymakers, the education community and the public at large with data in new and innovative ways.

**What is your data governance structure? Who is involved, and what are their responsibilities?**

Legislation and legislative appropriations established FETPIP as a vehicle to link cross-agency data sets. FLDOE is designated as the sole state agency with the responsibility to link these data sets. Memoranda of understanding also provide parameters for data sharing and use. The FLDOE also consults with its partner agencies in providing anonymized unit record-level data for research requests where there is mutual interest among the partners. The FLDOE, in agreement with the Agency for Workforce Innovation (AWI), also archives wage data (it maintains a continuous archive for each quarter beginning in 1990).

**What agencies are currently linking and sharing data?**

The main agencies involved in the linking and sharing of data are:

- The Department of Education;
- The Florida Community College System
- The Board of Governors of the University System
- Independent Colleges and Universities of Florida
- The Agency for Workforce Innovation
- The Department of Revenue
- The Department of Business and Professional Regulation
- The Department of Children and Families
- The Department of Corrections

- The U.S. Department of Defense
- The U.S. Office of Personnel Management
- The U.S. Postal Service

**What privacy and security measures have you put in place?**

FLDOE houses linked data in an off-line protected environment. No individually identified data are publicly released for any purpose. All reports and analyses are carefully screened so that no aggregate data points with fewer than five observations are publicly displayed. Additionally, existing MOUs require that the FLDOE observe the security protocols and be subject to the audits of its participating partner agencies.

**What were the biggest challenges you faced in establishing these links? How did you overcome them?**

The biggest challenges that Florida faced in establishing these links were:

- Overcoming the difficulties of building a culture where data sharing is the norm. Data sharing is not something agencies typically seek to do. Therefore, as the FETPIP system began, convincing agencies there were good reasons to create linkages and that there could be "something in it for everybody" was crucial.
- Overcoming the resistance present in the employer community. The FLDOE and its agency partners worked to convince the employer community that the state's data sharing efforts would result in improvements in the education and training system.
- Demonstrating the value of the linked data system on an ongoing basis. Data managers also serve as data entrepreneurs by seeking opportunities to demonstrate what the system can do and consistently deliver information and reports that address issues of concern to decision-makers.
- Overcoming parental privacy concerns. There was a two-pronged approach to addressing parental concern. First, a case was made for the direct-benefit of these systems for individual students, e.g., career planning and proper course placement. Secondly, and equally important, parents were educated about the type of data actually stored in the system; most of the data stored at the state level is not individual students' information.

**How are you helping to ensure interoperability between and among systems?**

FETPIP results are designed to be vertically and horizontally consistent through the already established interoperability structures inherent in the education reporting systems and the workforce reporting systems.

# INDIANA

*Leveraging linked K–12, postsecondary and workforce data to drive system-wide change*

## Data Use

**Why did your agency/organization begin linking data across agencies and sectors? What is the impetus behind this work?**

With an overall goal of raising people's standard of living, Indiana, through the Indiana Workforce Intelligence System (IWIS) sought to answer key questions about the role of education as a critical driver of workforce development to help inform statewide policy.

**What are some of the policy and programmatic questions or issues you hoped to address through the use of linked data?**

Questions that Indiana sought to answer include:

- Do students remain in the state upon graduation? Are they employed? If so, are they employed in the industry/fields for which they studied?
- What are the effects of vacant or filled positions on economic development?
- Is the Core 40 (state curriculum) a reliable measure of college and career readiness?

**How are the linked data being used?**

Linked data have been used to:

- Study course taking patterns, performance on end-of-course and state assessments, and PS outcomes.
- Explore K-12 and postsecondary alignment and create feedback reports for high schools.
- Evaluate the employment outcomes for retraining efforts involving dislocated workers. Through this analysis, Indiana was also able to determine worker characteristics and revise its adult education curriculum.
- Develop a "tipping point" study to assess when students reach a point in their study that would substantially affect their future annual earnings.
- Determine student mobility after graduation. Indiana was able to obtain a better picture of student employment patterns and identify where its students may be going.
- Improve marketing efforts for Indiana's community colleges. Using linked data from the state, rather than a national study, Indiana's community colleges are able to make a compelling and locally-relevant case about the wage increase that accompanies the earning of a degree.

**What is the impact on your work of having these linked data?**

Linked data have provided Indiana with:

- More information about the industry, wage and unemployment experiences of Indiana University system graduates. This information has been central to Indiana University's efforts to target curricula improvements, improve job training opportunities and provide appropriate interventions.
- The capacity to evaluate employment outcomes for individuals that participate in re-training efforts.

**What are the next steps in this work? In what other ways do you hope to use linked data?**

The next steps in this work include:

- Encouraging the use of IWIS data sets in teacher preparation courses.
- Designing and producing routine reports and customization options to aid universities with strategic planning and possibly for accreditation or program review.
- Working with the Lumina Foundation for Education to develop an "analytic modeling tool to identify factors influencing student success in higher education and the workforce"[2]

## Establishing Linked Data Systems

**What were the policy/political conditions, if any, in your state that made this work possible?**

The conditions that have made the work undertaken by IWIS possible include the following:

- Indiana's new governor included using data to make decisions as part of his campaign platform, thus making it easier to convince state agencies to share data in a secure environment.
- Technological improvement combined with a university partnership created an environment that brought together agency needs with technological capabilities to create a new integrated system.
- The recognition of mutual interest among the various agencies that are involved in the initiative has ensured continued, sustained collaboration.

**What is your data governance structure? Who is involved, and what are their responsibilities?**

A Steering Committee, made up of each major agency partner (Workforce, Education, Higher Education, and IU), the governor's education policy director and a representative from the Lumina Foundation, is in place to make major decisions. IWIS has instituted a team review of all work prior to publication and has imposed strict quality assurance controls. The integration work has been a partnership of Indiana University (IU)/Indiana Business Research Center and the Indiana Department of Workforce Development (IDWD). In terms of shared responsibility:

[2] Lumina Foundation For Education. *Lumina Foundation For Education Announces Fourth-Quarter 2009 Grants.* http://www.luminafoundation.org/newsroom/news_releases/2010-01-29.html

- IDWD provides the server and tools.
- The State of Indiana campus conducts all data integration.
- IBRC provides technical staff and statistical expertise.
- IDWD's Research & Analysis Unit pulls together all of its agency's data sets – claims, workers, new hires, etc. – in a format that can be shared with and used by the IBRC

**What agencies are currently linking and sharing data?**

The agencies that are currently involved in the linking and sharing of data are:

- The Indiana Department of Workforce Development
- The Indiana Commission for Higher Education
- The Indiana Department of Education
- The Indiana Business Research Center at Indiana University.

**What privacy and security measures have you put in place?**

The server is part of the state network and has automatic firewall protection through their state-mandated safeguards. Server access is restricted to a handful of critical users. IWIS also uses a method of daily application of a new unique ID to every record; this method is used to replace individual SSN after integration. Consequently, no fully matched records have SSN or other personally identifying information attached to them.

Furthermore, IBRC is taking care to limit access to student-level data. Only data warehouse architects and database administrators are able to see student-level records. An additional eight individuals can view student-unit record information without an attached ID. And customized reports and tables using aggregate-level data are more widely available. IBRC is also working to provide training for individuals who are involved in using these data. IBRC also annually updates its agreements with relevant agencies.

**What were the biggest challenges you faced in establishing these links? How did you overcome them?**

Among our biggest challenges were:

- Dealing with the inefficiency of the processes that were in place. IWIS established automated processes for obtaining data from the individual collector systems within each agency to create a more seamless data environment. IWIS built a bridge from the individual systems into the warehouse.
- Addressing the lack of an identifier common amongst agencies. The Indiana Department of Education uses test IDs while the Indiana Department of Workforce Development uses Social Security Numbers. IWIS is seeking to address this issue by doing fuzzy matching – a series of algorithms to look at multiple variables to try to get a match. The Commission for Higher Education also instituted a process that collects student testing IDs so that IWIS has both the testing ID and SSN.
- Convincing people that this is a research project that uses technology, not a technology project. It is important that IBRC be in constant communication with partner agencies and institutions to build mutual trust and understanding for the value of the project. A web site has been developed and a large part of it is dedicated to explaining the project more broadly. One-page description sheets are being developed and IWIS plans on making research findings more prominent.

**How are you helping to ensure interoperability between and among systems?**

IBRC is using SQL Server technology, but are prepared to set up shares with other platforms. IBRC also designed a new data warehouse for Indiana's Commission on Higher Ed and were able to put things in place to ensure its interoperability with IWIS. There are plans to link K-12 data, but IWIS is in the beginning stages of this work. IWIS is currently getting matched data from DOE and is working closely with the DOE to ensure greater interoperability.

# TEXAS

*Leveraging linked K20/workforce data to understand the connection between student outcomes and the economy*

## Data Use

**Why did your agency/organization begin linking data across agencies and sectors? What is the impetus behind this work?**

There is a long history of linking and sharing data in Texas which began over twenty years ago. However, with changes in administration and varying interpretations of federal privacy laws, there are now two efforts underway in Texas regarding the linking of statewide longitudinal data systems across sectors.

- In 2003, through SB 281, the legislature required the Texas Workforce Commission (TWC) to review student outcomes by student cohorts. This work required the linking of postsecondary and workforce data.
- In 2007 through HB 1, the legislature established three Education Research Centers to help facilitate the linking of data between K-12 and postsecondary, and to some extent with workforce data.

**What are some of the policy and programmatic questions or issues you hoped to address through the use of linked data?**

The policy and programmatic issues that have been addressed through the use of linked data include:

- Evaluating the effectiveness of publicly funded education and workforce programs.
- Providing data on the employment status of Texas' postsecondary graduates, a key component of the Texas Higher Education Coordination Board (THECB) Accountability System.
- Measuring the placement rate of workforce education program graduates within one year following graduation as a part of the THECB Evaluation of Institutional Effectiveness. The THECB Evaluation of Institutional Effectiveness requires an 85% placement rate (labor market and/or postsecondary education).

**How are the linked data being used?**

- The Texas Higher Education Coordinating Board requires follow up on all students and the publishing of reports for the public.
- The Southern Association of Colleges and Schools reviews graduate outcome data as part of its accreditation process.
- K12 uses linked data to evaluate its CTE programs.

**What is the impact on your work of having these linked data?**

While linked data have done little to change the Texas Workforce Commission's operational practice, program management or policy, the agency has used linked data to successfully request additional funding from the state legislature for particular programs.

However, in terms of the work of the postsecondary system, student follow-up information is currently a part of the state higher education accountability system. Consequently, this has given higher education administrators a new perspective on their institutions' role in terms of producing graduates that can be successful in the labor market. Universities have responded by aligning postsecondary programs to the needs of the labor market.

**What are the next steps in this work? In what other ways do you hope to use linked data?**

- It is envisioned that K-12 data and workforce data would be linked via the P-16 data warehouse. However, the warehouse has not yet expanded to include labor market information.
- The Texas Workforce Commission aims to use linked data for program planning and continuous improvement. This will require a major culture shift.

## Establishing Linked Data Systems

**What were the policy/political conditions, if any, in your state that made this work possible?**

The state follow-up system was born out of a confluence of several factors. Twenty years ago, the call to develop an automated matching process was driven by a response to budgetary and increasing calls for accountability in programs at public community and technical colleges, particularly those funded under Perkin's (the THECB required that each Technical program must place 85% of all graduates within one year of graduation). Furthermore, federal legislation such as GEPRA mandated performance measures for education programs using data from state management information systems. Around the same time period, the OMB also mandated performance measures for education programs.

**What is your data governance structure? Who is involved, and what are their responsibilities?**

- The linking and sharing of postsecondary and workforce data occurs between the THECB and TWC. Specifically, TWC sends data to the THECB where the data linking is performed. The THECB sends aggregate data back to TWC.
- With regard to P-16 education data, data matching occurs at the SEA and these linked data sets are sent to the three research centers across Texas – University of Texas at Austin, University of Texas at Dallas and Texas A&M.

**What agencies are currently linking and sharing data?**

- The agencies that are sharing data on a regular basis for the different accountability requirements are the Texas Workforce Commission (TWC) and the Texas Higher Education Coordinating Board (THECB).
- Through the P-16 data warehouse, the Texas State Education Agency and the Texas Higher Education Coordinating Board are sharing data.

**What privacy and security measures have you put in place?**

Texas' privacy and security measures include:

- Having the education agencies (either the state education agency or the Texas Higher Education Coordinating Board) conduct all the data linking.
- Ensuring that all student-level data sent to research centers are given new, alternate IDs. Students' social security numbers (SSN) are stored at the SEA.
- Having in place a research approval process where a joint advisory board reviews all requests for access to data.
- Implementing a screening process of everyone involved in working with and using student-level data.
- Limiting the variables that are shared. UI wage record system data that are extracted and shared do not include any confidential information.

**What were the biggest challenges you faced in establishing these links? How did you overcome them?**

Among the challenges the Texas Workforce Commission faced were:

- Depending on education agencies to do all the data linking.
- Tackling the challenges of using linked data for continuous improvement rather than just compliance.

**How are you helping to ensure interoperability between and among systems?**

Each state agency participating in the record-matching process operates its own data collection and data management system. Data are shared through MOUs by using SSN as the common key. Data files that are exchanged are accompanied by a data dictionary. Agency personnel communicate on an "as needed" basis to ensure that the data are clearly understood by all parties.

## CONCLUSION

States have made tremendous progress in building K-12 statewide longitudinal data systems and many are beginning to link data from their K-12 systems with data from other sectors. However, states are a long way from being able link their data across the entire P20/Workforce spectrum (only nine states report the capacity to conduct these links) and from using these data to inform and impact policies, programs and practice to ensure continuous improvement.

Nevertheless, as demonstrated by the four examples above, there are myriad ways in which data can be shared, linked and used to ensure that decisions at the systemwide, programmatic and individual levels are informed by relevant data and analysis. The way in which each state links and shares data from multiple sectors will undoubtedly vary depending on the needs and political realities of each state -- some states may develop a single system and others may link multiple longitudinal data systems together. Regardless of how these data are linked, there is much that states can learn from each other's efforts and, in some cases, there may be opportunities to collaborate on the building of linked longitudinal data systems that are interoperable across state lines.

States that are just beginning this work, as well states that are well on their way, can all learn from each other about ways to:

- Prioritize critical policy questions that can help drive data system development and use;
- Ensure systems interoperability by adopting common data standards, definitions and language; and
- Continue protecting shared data by ensuring appropriate data privacy, security and confidentiality procedures and processes are in place.

## RESOURCES

***The Data Quality Campaign Web site*** is host to numerous resources for readers to gain in-depth knowledge about P20/workforce and cross-agency linkages, including resources in the following topic areas: Data-Driven Educator Development, Early Childhood, Data Privacy, Security, and Confidentiality, Postsecondary data, Workforce data, and federal data systems funding. Select DQC resources include:

Data Quality Campaign, *Action 1: Link P-20/ workforce Data Systems*, 2010. http://dataqualitycampaign.org/files/Action1_Compendium.pdf

Data Quality Campaign, *Developing and Supporting P–20 Education Data Systems: Models that Work*, 2008, www.DataQualityCampaign.org/resources/92.

Data Quality Campaign, *Education and Workforce Data Systems – A Primer on State Status*, 2010, http://dataqualitycampaign.org/resources/details/925.

Data Quality Campaign, *Leveraging Federal Funding for Longitudinal Data Systems*, 2010, http://dataqualitycampaign.org/resources/arra_programs.

Data Quality Campaign, *Linking Data Across Agencies: States that Are Making It work*, 2010, http://dataqualitycampaign.org/resources/details/699

Data Quality Campaign, *Measuring the Education Pipeline: Common Data Elements Indicating Readiness, Transition, and Success*, 2009, www.DataQualityCampaign.org/files/Pipeline.pdf.

Data Quality Campaign, *The Next Step: Using Longitudinal Data Systems to Improve Student Success*, 2009, www.DataQualityCampaign.org/resources/384.

*Note*: If you have a resource or story to tell about the effective use of data to improve student achievement and system performance, please send it to Rebecca@DataQualityCampaign.org so it can be highlighted on the DQC website.

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The **Data Quality Campaign (DQC)** is a national, collaborative initiative to encourage and support state policymakers' efforts to improve the availability and use of high-quality education data to improve student achievement. The campaign will provide tools and resources that will help states implement and use longitudinal data systems, while providing a national forum for reducing duplication of effort and promoting greater coordination and consensus among the organizations focused on improving data quality, access and use.

This issue brief is being released in conjunction with the DQC Quarterly Issue Meeting, "Using Data to Drive Improvement in Education and Training: Voices from Sates," held in October 2010. Both the meeting and the brief were made possible through the generous funds from the Bill & Melinda Gates Foundation and Lumina Foundation for Education. Please visit the DQC Web site to for meeting materials and additional resources.

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For more information about the Data Quality Campaign, visit www.DataQualityCampaign.org.

**Managing Partners of the Data Quality Campaign include:**

- Achieve, Inc.
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- Council of Chief State School Officers
- Education Commission of the States
- The Education Trust
- National Association of State Boards of Education
- National Association of System Heads
- National Center for Educational Achievement
- National Center for Higher Education Management Systems
- National Conference of State Legislatures
- National Governors Association Center for Best Practices
- Schools Interoperability Framework Association
- State Educational Technology Director Association
- State Higher Education Executive Officers

*For a list of Endorsing Partners, please visit www.DataQualityCampaign.org.*