SLDS Topical Webinar Summary
Linking K12 Education Data to Workforce

By linking K12 education data with data from labor and workforce programs, states can start to build a clearer picture of student outcomes apart from college going to include their preparedness for successful careers. Many states are still in the early stages of matching records across education and workforce agencies within their statewide longitudinal data systems (SLDSs). There are many considerations that must be addressed, including how the records will be matched, how matched data will be managed and used, and how the privacy of individuals will be protected. For states that have developed processes to link records across the education and workforce sectors, the combined data has begun to yield valuable information about education and employment pathways for their citizens.

Idaho and Kentucky share their procedures for linking K12 education and workforce data, how they approached challenges to linking individual records, and the questions they hope to answer about education and employment outcomes through their SLDSs.

Idaho: A Federated Approach to Data Matching

After developing a K12 data system under its fiscal year (FY) 2009 SLDS grant, Idaho expanded its data integration efforts to incorporate postsecondary and workforce with a new grant in 2012. The State Board of Education, which oversees all public education in Idaho, is the primary coordinator for the expanded SLDS, with the State Department of Education, the Idaho Department of Labor, and the Idaho Department of Transportation as partners.

The involvement of the Department of Transportation is key to Idaho's process for matching individual records across education and workforce programs. Because the K12 data system identifies student records by name, date of birth, and gender, and the Department of Labor's records contain only Social Security numbers and some names, a method was needed to link the education sector's demographic information to Labor's Social Security numbers. Driver's license and state ID records from the Department of Transportation's Division of Motor Vehicles (DMV), which contain names, dates of birth, genders, and Social Security numbers, supply that link (see figure 1).

K12 Record
- Name
- Date of birth
- Gender
- Unique student identifier (EDUID)

DMV Record
- Social Security number
- Name *(and alternate names)*
- Date of birth
- Gender
- Last record update

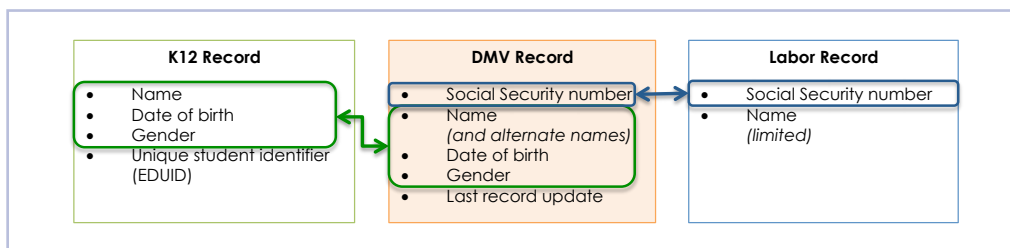**Labor Record**
- Social Security number
- Name *(limited)*

Figure 1. Key data linking Idaho's K12 student records to Department of Labor records

When data from public K12 and postsecondary institutions need to be matched with workforce data, the State Board of Education sends the student records it needs matched with a temporary identifier—called a labor exchange ID, or LABXID—to the Department of Labor. Labor runs those student records through a probabilistic matching algorithm originally developed by the State Department of Education for its

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K12 data system. For workforce matching, the algorithm compares the student records to DMV driver's license and state ID records, scoring each match according to how closely the names (including first names, last names, and nicknames), dates of birth, and genders align between records. Matches scoring above a certain threshold are declared "true" matches, connected to workforce records based on Social Security number, and assigned a labor unique identifier (LABUID). Possible matches not meeting that threshold are reviewed manually before being linked to workforce records. Once all matches are identified, Labor shares the LABUID for matched records with the State Board of Education, which stores the LABUIDs for future data retrieval.

Idaho's matching process is designed to limit the transfer of personally identifiable information between the partner agencies in the state's federated SLDS model. The Department of Labor never sees the student name, date of birth, or gender data that are entered in the matching algorithm; it only receives the Social Security numbers and

LABXIDs for each record once the first stage of matching through DMV records is complete. Likewise, the State Board of Education never receives the Social Security numbers used to identify Labor records, only the LABUID for each individual once the records have been matched. Figure 2 depicts the matching process.

The state is still in the early stages of matching its education, workforce, and DMV records. Despite the possible limitations of DMV data—including being less representative of populations living in urban areas who may not have driver's licenses and of out-of-state students and employees—the Department of Labor has found that 90 percent of its workforce wage records can be matched to the DMV records. The state anticipates an 85 percent match rate once these data are paired with all available education records.

A combination of existing agency policies, SLDS-specific memoranda of understanding (MOUs), and common goals for using SLDS data have facilitated data sharing among Idaho's SLDS partners. The use of DMV records for the data-matching process is covered by a Department
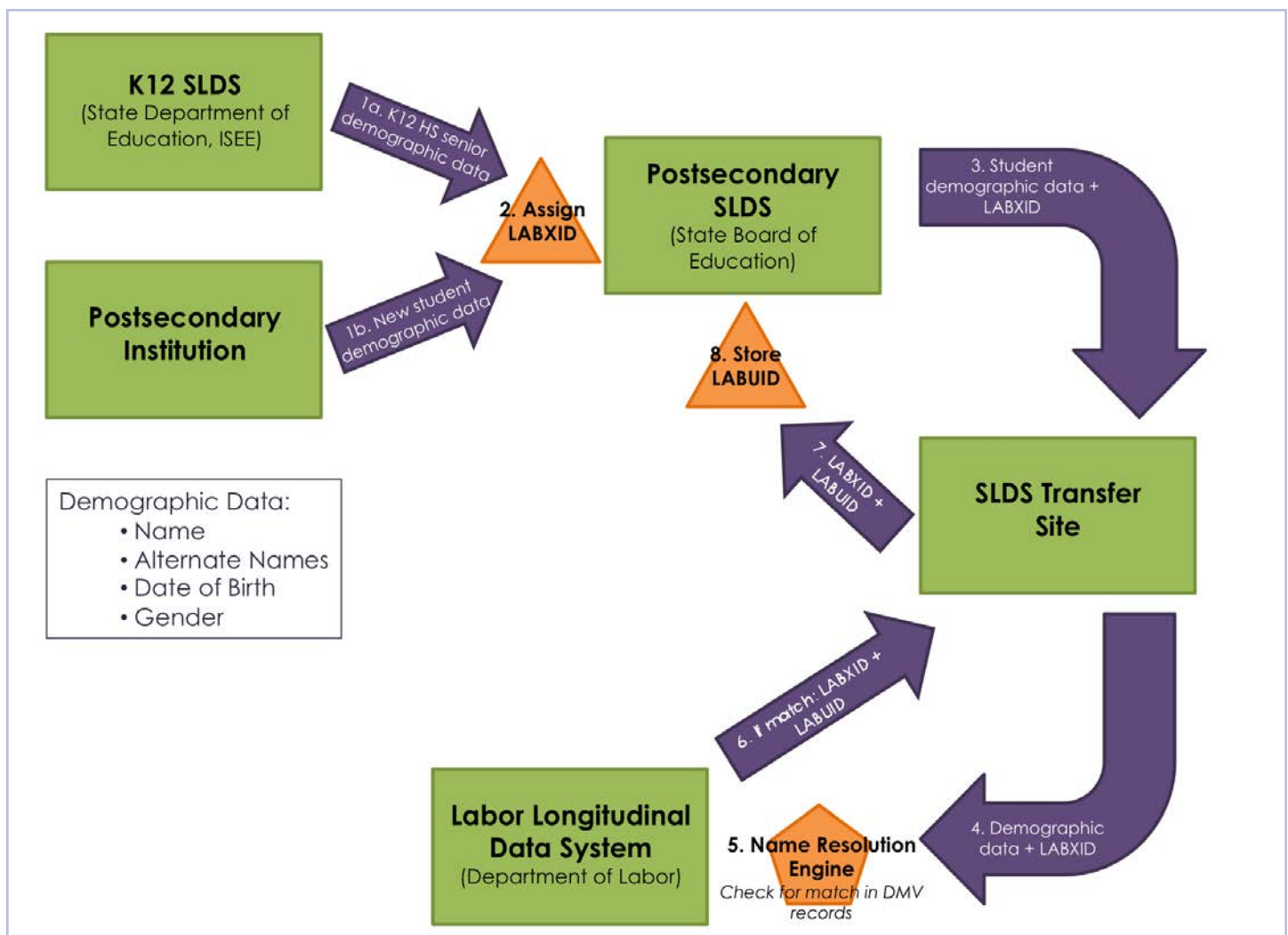

Figure 2. Idaho's data matching process for education and workforce records

of Transportation policy expressly allowing the agency to share data with other state agencies to help those agencies perform their work better. Many data-sharing partnerships were established before the state received the 2012 grant to integrate workforce data into its SLDS, and once the grant was in place, the state moved quickly to establish the remaining MOUs necessary for data sharing within a few months. Additionally, statewide policy goals related to education and workforce outcomes as well as interest from lawmakers in those outcomes lend further support to the collaboration. Idaho has adopted the goal of having 60 percent of adults ages 25 to 34 with at least a one-year postsecondary certificate or a higher education degree by 2020. That goal, along with public interest in additional aspects of educational attainment, success in finding a job, and employee wages, contributes to a supportive political environment for collecting and using longitudinal data.

Idaho plans to use its expanded SLDS to enhance existing high school feedback reports, which currently provide public high schools with information about the number of their graduates who enroll in college and the number who drop out after the first year. With the addition of workforce data from the Department of Labor, schools will receive some employment information about students who enter the labor market immediately after high school. The state also expects to be able to answer several questions about education and workforce outcomes, including the following:

- Is employment in high school related to college and career readiness? Is it related to success in high school?
- What percentage of high school dropouts are employed?
- How long does earning a GED take while employed?
- Is employment status in high school related to employment outcomes after college, including time to find a job and wages?

The workforce data being integrated into Idaho's SLDS currently consist of Department of Labor data covered under unemployment insurance tax law. These data include limited information about employment location, and no information about hours worked or occupation. Labor is hopeful that once more reports and findings based on SLDS data are published, it will be able to gather additional data to support further research. Legislation to allow Labor to collect information about work hours is currently being developed in advance of the state's next legislative session.

> Idaho has found that 90 percent of its workforce wage records can be matched to DMV records, and it anticipates an 85 percent match once these data are paired with all available education records.

Kentucky: A Centralized Approach to Data Matching

As the independent state agency tasked with measuring and evaluating Kentucky's education and workforce programs, the Kentucky Center for Education and Workforce Statistics (KCEWS) is authorized to collect education and workforce data from a variety of state agencies into its centralized SLDS. KCEWS was created in 2012 by executive order and ratified in 2013 by the state legislature, but the center builds on cross-sector education and workforce data efforts that began years earlier. Its purpose is to inform lawmakers, policymakers, and stakeholders with education and workforce evaluations and metrics while also working to safeguard privacy, confidentiality, and data quality for the state.

In order to gain a more complete understanding of how Kentucky's education institutions, workforce programs, and industries interact, KCEWS collects data from a range of sources. These sources include early childhood programs; public K12 data on students and teachers; public, independent, and out-of-state postsecondary institutions; public and private student financial aid; unemployment insurance records; career technical education programs; and agencies receiving Workforce Investment Act funds. In addition to legislation, KCEWS has MOUs with each contributing agency that allow sharing of data into the SLDS. Staff members at the providing agencies are able to access data in the De-identified Reporting System (DRS) through business intelligence software. Additional agreements are needed to release data for evaluation or research purposes. In order to guarantee appropriate security measures for sharing and safeguarding the privacy of individual data, creating the MOUs with partner agencies can be a time-consuming process for KCEWS.

Depending on the data collected by each source, individual records can be matched in the SLDS along multiple dimensions, such as Social Security number, name, date of birth, and agency-specific unique ID. The matching process allows for fuzzy logic when linking data elements in multiple records. The cumulative data collected about a single individual are stored in a master persons table, which saves the highest quality or most recent data available across all sources. "Phantom" records such as workforce records without earnings data are excluded, and the cleaned data are stored in a de-identified data warehouse for use by KCEWS and authorized researchers. The Kentucky SLDS is illustrated in figure 3 (next page).

As a result of linking its education data to workforce records, Kentucky has begun to examine outcomes for its high school graduates beyond college enrollment and completion. KCEWS's July 2014 report *No College = Low Wages* drew on SLDS data to determine that two-thirds of
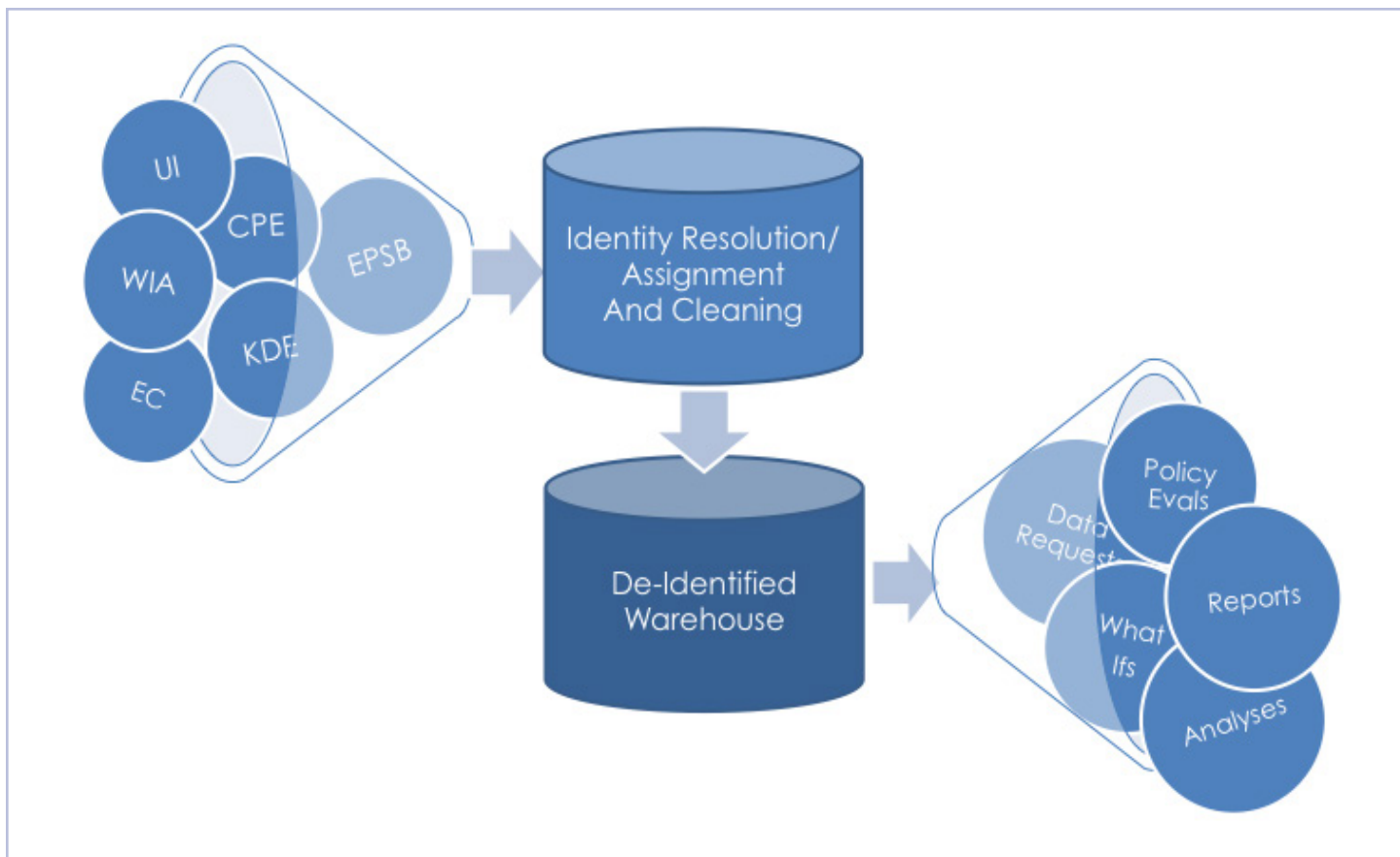
Figure 3. The Kentucky Longitudinal Data System

high school graduates who were employed in Kentucky but not enrolled in college earned less than the equivalent of a full-time salary at minimum wage. One year after graduation, the median annual income for non-college graduates was $7,500, which increased to $11,500 three years after graduation. The report showed that three years after graduation, on average, women earned 70 percent of the amount that men earned, and the salaries of African American graduates were 30 percent less than white graduates. It also found that graduates who had 20 or more unexcused absences in their senior year of high school earned up to 55 percent less than students with five or fewer unexcused absences, and that 60 percent of non-college graduates worked in Kentucky's four lowest-paying industries (retail trade; accommodation and food services; educational services; and administration and support, waste management, and remediation services).

Kentucky is also using its linked data to examine employment and earnings outcomes for college graduates and individuals who complete training programs. Reports and information released from the SLDS provide colleges with feedback on how their students are faring in the workforce, and they give students an idea of what they can expect about employment locations and wages in certain industries. The linked data also offer insight into which industries are hiring the most Kentucky residents as well

as regional variation in demand for workers in various industries. Based on its postsecondary data and employment records, Kentucky can begin to draw inferences about out-of-state migration from numbers of college graduates in specific majors who do not later become employed in Kentucky. The data are also being used to calculate return on investment for education and training programs, as well as to facilitate federal reporting for education agencies that previously relied on surveys to track students after graduation. When creating reports and products for public release, KCEWS sums quarterly wage reports into annual earnings and combines wages for individuals who worked for multiple employers in a quarter to give an accurate and easy-to-understand picture of earnings.

Like Idaho, Kentucky has found limitations in using unemployment insurance wage reports with limited data on employment locations and specific occupations within an industry. Even so, the state estimates that available records cover 90 percent of individuals employed in Kentucky, and it is developing methods to track Kentucky graduates employed in other states and in the military or federal agencies. Kentucky is also working to collect information on graduates employed in the state who are not part of the unemployment insurance system by using state revenue data.

Summary of K12-Workforce Data Systems by State

	Idaho	Kentucky
SLDS model	Federated	Centralized
Data sources	• State Department of Education (K12) • Public postsecondary institutions • Idaho Department of Labor	• Early childhood programs • Kentucky Department of Education • Council on Postsecondary Education • Education Professional Standards Board • Unemployment insurance • Workforce Investment Act
Records matched on …	• Name • Date of birth • Gender • Social Security number Using DMV records as a bridge between education and labor	• Name • Date of birth • Gender • Social Security number • Agency-specific ID • Location • Race/ethnicity
Matching performed by …	State Board of Education, Idaho Department of Labor	Kentucky Center for Education and Workforce Statistics
Unique identifie	Labor Unique ID (LABUID)	Social Security number stored in master persons table
Unique identifier stored by	State Board of Education, Idaho Department of Labor	Kentucky Center for Education and Workforce Statistics

Additional Resources

Idaho Department of Labor
http://labor.idaho.gov/

Kentucky Center for Education and Workforce Statistics
http://kcews.ky.gov/

No College = Low Wages
http://kcews.ky.gov/Reports/NoCollegeLowWagesJuly2014.pdf

SLDS Spotlight: State Approaches to Engaging Local K12 Stakeholders
http://nces.ed.gov/programs/slds/pdf/spotlight_engaging_local_stakeholders.pdf

SLDS Webinar Summary: Engaging Local Stakeholders from Postsecondary and/or Workforce
http://nces.ed.gov/programs/slds/pdf/Postsecondary_and_Workforce_webinar_May2013.pdf

SLDS Webinar Summary: Using DMV Records to Access Social Security Numbers
http://nces.ed.gov/programs/slds/pdf/Using_DMV_Records_to_Access_SSNs_Webinar_Nov2013.pdf