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Data to Serve Policy, Programs, and People
Reinventing California's Education and Workforce Data Systems

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Across the nation, there has been a surge in efforts by the federal and state governments and by education and workforce institutions to develop data systems to answer critical policy questions, implement effective practices, and improve student outcomes. California lags behind most states in tackling the data challenge. This policy brief details why we need good data, the range of data that are necessary, the characteristics of data systems designed to serve the needs of all major stakeholders, and what other states are doing to implement high quality systems. We also review some current efforts in California toward a more comprehensive, integrated data infrastructure. The purpose of the brief is to spur discussion and action on the next steps California should take.

Why are data important and what kind of data do we need?

Historically, data collection has been used almost exclusively for oversight and compliance monitoring. Yet data are essential for effective decision-making by a range stakeholders in the education and workforce system including:

- Governors and legislators – to develop evidence-based policies and effectively allocate scarce resources;
- State and local education administrators – to shape policies and allocate resources, but also to evaluate effective programs, inform professional development offerings, and develop linkages among institutions;
- Teachers and guidance counselors – to develop curricula, assess and guide students, and create learning plans;
- Workforce development professionals – to identify remedial needs of students, provide market-informed career counseling, and help clients find jobs;
- Students, parents, and job seekers – to make informed education, training, and career decisions.

Different kinds of data are necessary to meet this wide range of needs. These include:

- **Education data.** Schools at all levels collect data on enrollment, demographics, student performance and/or outcomes (such as degrees and credentials attained), often by type of course. Most schools also have transcript information for individual students, information on financial aid, and more.

> ### Individual vs. Aggregate Data
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> One important distinction is the lens through which data are viewed: the *aggregate lens* (by class, program of study, institution, student type, region, state) versus the *individual lens* (the progress, choices, and decisions pertaining to an individual student or program participant).
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> An individual transcript is largely an instrument for the individual lens, in much the same way that medical records help healthcare professionals make decisions and provide guidance to patients. In contrast, most of the data collected by institutions on students/participants is to make broader institutional and policy decisions.

- **Workforce program data.** Career technical education, adult education, the Workforce Innovation and Opportunity Act, and other workforce development programs report on participant demographics, services received, progress made toward goals, degrees and credentials attained, and employment outcomes.

- **Employment data.** Information on the employment status and earnings of students/program participants is sometimes based on a sample of those individuals who are surveyed after program completion. Much more reliable data comes from sources such as Unemployment Insurance wage records.

- **Labor market information data.** Institutions, particularly workforce education and training programs, and individuals cannot make rational choices without timely, regionalized information about industry and occupational demand, wages, skill requirements, and other labor market information. LMI data comes from surveys of employers and individuals, data from tax records and other reported data, and "real-time" data from online job ads and resume databases.

What are the characteristics of data systems designed to serve the needs of all stakeholders?

Effective state data systems should be comprehensive, longitudinal, aligned, timely, designed to guide policymakers, institutions, and individuals, as well as both secure *and* accessible.

- **Comprehensive:** Ideally, a state's data system includes pre-K, K-12, postsecondary education, workforce programs, social services, and other critical state agency data systems.

- **Longitudinal:** Data systems should be able to track students over time, across institutions and programs, and into the labor market.

- **Aligned:** At least in the case of workforce programs, including career technical education (CTE) programs, metrics should be consistent.

- **Timely:** For data to be useful, they must be regularly updated.

- **Designed to guide policymakers, institutions, and individuals:** Even to meet the needs of institutions, data systems must have both aggregate and individual uses in mind.

- **Secure and accessible:** Systems must be designed so that the data of individual students and participants are protected and remain private. All stakeholders do not need access to all data. At the same time, for data systems to be useful all stakeholders must have timely and ready access to the data they do need to make informed decisions.

What can we learn from other states?

To develop data systems with these characteristics, most other states are in the process of implementing many of the following policy reforms:

- *Linking state K-12 data systems with early learning, postsecondary, workforce, and other critical state agency data systems*. In 2014, 43 states linked pre-K, K-12, and post-secondary data; 19 also linked these data to workforce data.

- *Developing governance structures to guide data collection and use.* In 2014, 43 states had established cross-agency data councils or similar structures that design procedures to safeguard data and ensure collaborative decision-making by all relevant parties. These governance structures can be advisory or formal.

- *Implementing systems to provide all stakeholders timely access to the information they need while protecting student privacy*. States are implementing systems that are transparent about who is authorized to access specific data and for what purposes.

- *Assessing employment outcomes*: States are increasingly tracking employment and earnings outcomes across a wide range of programs and institutions, including higher education.

- *Creating reports with student level data for some stakeholders and reports with longitudinal, aggregate data for other stakeholders*. Student-level reports can be used for diagnostic and assessment purposes and can help educators develop individualized learning plans. Longitudinal, aggregate data are essential to evidence-based policymaking. States are preparing scorecards that allow students and workers to make education and career decisions. They are also creating dashboards that provide policymakers with regularized updates on the outcomes of participants in education and workforce programs.

What is happening in California?

Nationally, the Data Quality Campaign (DQC) and the affiliated Workforce Data Quality Campaign (WDQC) produce regular reports on states progress toward high quality, integrated education and workforce development data systems. California did not participate in the 2014 DQC survey; it did participate in the somewhat more limited 2015 WDQC survey. Both suggest that our state considerably lags others in our implementation of the policy reforms detailed above.

At the same time, there is important work underway in California to make workforce education and training data more relevant, accessible, and well integrated. California also is participating in a national effort known as the State Workforce Education Alignment Project (SWEAP), an initiative of the National Skills Coalition, that is helping four states develop and use data tools that align workforce and education programs with each other and with employers' skill needs.

Labor Agency-Based Efforts

The California Labor and Workforce Development Agency houses both the California Workforce Development Board (CWDB) and the Employment Development Department (EDD), including its Labor Market Information Division (LMID). The Labor Agency has the central role in leadership, administration, and oversight of workforce programs and of some major data efforts, including the following:

- **Meeting the Requirements of the Workforce Investment and Opportunity Act**

The new federal Workforce Investment and Opportunity Act (WIOA) and relevant regulations envision that states will take steps to implement integrated intake and reporting mechanisms through data system interoperability. To achieve this goal, the CWDB has convened a Data Alignment and Integration Workgroup to assess what is currently in place and how to begin to move toward greater integration.

There are two kinds of partners in this effort: WIOA core program partners and non-core partners. The WIOA core partners are EDD, the California Department of Education, because of its Adult Education program, and the California Department of Rehabilitation. The key voluntary partner is the California Community College Chancellor's Office, both its Adult Education programs and CTE programs. Each of these agencies uses a different data system designed for its own purposes. As such, the information collected varies, the format of that information also differs from system to system, and each program has its own metrics.

> **WIOA Core Program Partners**
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> - Adult, Dislocated Worker, and Youth WIOA Programs (WIOA Title I)
> - Adult Education and Literacy (WIOA Title II)
> - Wagner-Peyser (WIOA Title II – only some measures apply)
> - Title I of the Rehabilitation Act of 1973 (selected programs)
> - Job Corps (only some measures

The federal WIOA legislation requires the programs it funds to use a set of common metrics. States also can add common metrics and California is contemplating adding one or more metric related to training-related employment. But there are limitations to the integration mandated by WIOA. For example, Title II (Adult Education and Family Literacy) does not require individuals to provide a social security number (SSN) that can be used to match them with Unemployment Insurance wage record data. The California Department of Education (including its Adult Education program) does not collect SSNs.

WIOA also has no authority over data collection by the community colleges, except if they receive WIOA Title I or Title II monies. That may change when the federal Carl Perkins Vocational and Technical Education Act, which provides funding for CTE programs both at the K-12 and community college level, is reauthorized. Until then, alignment of CCC and WIOA data collection and metrics is partially voluntary.

The work of the Data Alignment and Integration Workgroup effort is raising broader questions about what kind of approach to integration is preferable in the California data environment. The CWDB has examined two approaches: "centralization" and "federation". In a centralized data system, participating agencies link their data to a single, centrally located data repository where they are organized, integrated, and stored using a common data standard. Authorized users can access and query the system. In a federated data system, individual agencies agree to share some or all of this information with other participating systems on request. There are advantages and disadvantages to both but in the California environment, the federated approach may be most practical.

- **Workforce Dashboard**

The purpose of workforce dashboards is to provide policymakers and other stakeholders an easily understood annual snapshot of the progress the overall workforce education and training system is making toward meeting its goals. In 2014, Assembly Bill 2148 (Mullin) mandated the development of an interagency annual workforce metrics dashboard that includes participant demographic information and outcomes from most of California's major workforce development programs: community colleges CTE programs, the Employment Training Panel, WIOA, Adult Education, Trade Adjustment Assistance, and state apprenticeship programs.

The dashboard is designed to use data already collected by each program on a variety of demographic characteristics as well as program completion, degree and certificate completion, and wage attainment. Data from participating agencies will be transmitted in a standardized file format to EDD's Labor Market Information Division. LMID will data match participant social security numbers with the Unemployment Insurance base wage file. In order to align the dashboard with WIOA requirements, it will report on outcomes on the second and fourth quarters following participants' exit.

Education-Based Efforts

The California Community College Chancellor's Office (CCCCO) has played a leading role in developing increasingly useful data sites and reaching out to link them to the data of other education and workforce programs and to the labor market. Their efforts include the following:

- **Cal-PASS Plus**

Cal-PASS Plus (CPP), a project of the CCCCO, began as a statewide database to promote student achievement through the collection, analysis and review of student assessment data. From its inception, the project engaged K-12, CCC, CSU, and UC partners on a voluntary basis. Since 2012, CPP has been managed as a partnership between San Joaquin Delta College, Educational Results Partnership, and the San Joaquin County Office of Education. CPP also has an advisory board from each of the academic segments (K-12, CCC, CSU, UC, and private post-secondary schools) and representatives from the business and workforce communities. Cal-PASS Plus members, under signed Memorandums of Understanding and Data Sharing Agreement, can use the CPP.

CPP is now a system of comprehensive student-level data linked across multiple institutions and data sets. It allows for the tracking of student cohorts on dimensions such as demographics, achievement, transitions, and economic mobility. The CPP website offers a variety of features including data analysis and reporting tools at the local, regional, and statewide levels.

One of the major projects of Cal-PASS Plus is the Career Technical Education LaunchBoard. The CTE LaunchBoard is designed to provide data to the CCCs on the effectiveness of CTE programs. The LaunchBoard brings together multiple data sets, including K-12, transfer, employment and earnings records, labor market information, and results from the CTE Employment Outcomes Survey (CTEOS). The LaunchBoard is divided into four sections:

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Cal-PASS Plus Participating Districts and Institutions, 2013-2014

- 536 K-12 districts (52% of districts, 80% of students)
- 112 California Community Colleges (100%)
- 18 California State Universities (78%)
- 8 University of California Campuses (80%)

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- Program Snapshot: graphical and detailed data tables on college offerings, students' educational attainment, employment outcomes, and regional labor market demand;
- Common Metrics: tracks student progress using accountability metrics determined by the CCCCO's Workforce and Economic Development division.
- CTEOS: makes Career and Technical Education Outcomes Survey responses broadly available to faculty and administrators;
- CCPT: supports data collection for California Career Pathways Trust grant consortia.

Metrics included in the LaunchBoard assess student progress through CTE career pathways, including K-12 student transitions to community college, community college career pathways completion and degree/certificate attainment, and transition into further education and/or entry into the workforce in that career pathway.

The Program Snapshot provides CTE student outcome and labor market data in a question and answer format, as well as through detailed data tables that are grouped into categories such as enrollments, milestones, credentials, and employment. Users can filter information by college, region, or statewide; program or industry sector; and year, as well as seeing results that are disaggregated by 20 different student characteristics.

The Common Metrics tool provides data on performance measures that were identified by the CCCCO. A revised set of Common Metrics will be implemented this fall that are aligned with WIOA measures and provide key indicators of progress towards goals like completion and employment. Unlike the rest of the LaunchBoard, this information will be made publicly-available in a dashboard format.

The CTE Outcomes Survey is a voluntary, statewide survey of students in CCC CTE programs one year after they earned a credential or stopped taking courses. CTEOS augments information

available through the Unemployment Insurance wage data set, such as employment in field of study, attainment of a third-party credential, whether a student started a business, changes in wages and hours worked. CTEOS is conducted by Santa Rosa Community College.

- **CCCCO Data Mart**

    The CCCCO's Data Mart is a decade-old publicly-available tool designed for college researchers, faculty, and administrators. The site provides information about students, courses, student services, outcomes, faculty and staff. Users can run reports on topics such as the number of full-and part-time students, sections offered, students enrolled, program awards. Data can be run statewide or disaggregated by districts, colleges, terms, and demographic groups. The data provide yearly snapshots, rather than the ability to track cohorts over time.

- **CCCCO Wage Tracking Tools**

    The community colleges have several related tools for tracking graduates' wages:

    - *Salary Surfer* was designed by the CCCCO as a web application for students and families and provides a window into the median wages earned after completing an award or certificate in 179 of the most widely enrolled disciplines. This application aggregates five years of data to create student cohorts and then displays median wages of each cohort two years before, two years after, and five years after award of a degree or certificate. Salary Surfer also provides information on which colleges offer programs in each discipline.

    - *System Wage Tracker* is on the CCCCO's Datamart and allows aggregated Salary Surfer information to be downloaded for further analysis.

    - *College Wage Tracker,* also on Datamart, provides information on students' median wages three years after graduation, by discipline and by college.

    - *College Wages by Program* allows researchers to download median wages of completers by program and college, and is available only through a password-protected site.

    - *Student Success Scorecard,* which documents statewide and college-level outcomes such as graduation and remediation rates, just added a metric on the earnings gains of skills-builders, students who take one or two CTE courses to maintain and add to skills required for employment.

- **California College Guidance Initiative**

    The California College Guidance Initiative (CCGI) is not a project of the CCCCO but is housed at the Foundation for California Community Colleges. CCGI is a student-centered data project designed to help students and their parents make critical educational decisions and to support counselors and educational institutions in guiding and placing students. Like Cal-PASS Plus, CCGI is partnership-

based, that is, it works with and serves an expanding number of K-12 districts, community colleges, and CSU campuses on an "opt in" basis.

CCGI creates individual web-based college and career planning portfolios, populated by verified transcript data for each sixth through twelfth grade student in the K-12 partner districts. Students' progress is tracked on 18 college planning milestones and students are provided with regular reports on A-G completion. Counselors can track student progress both at the individual and aggregate levels. Student records can be used to inform admissions and placement decisions when students apply to college.

The CSU system has aligned its MENTOR application platform with CCGI's, which allows students to automatically populate their application to all CSUs from their individual planning portfolios. In CCGI partner districts, student applications include verified transcript data, which enables admissions staff to make more timely admissions decisions and provides students with more timely information about admission and financial aid.

For the 2016-17 school year, there are 25 K-12 school districts partnering with CCGI, collectively serving roughly 400,000 sixth through twelfth grade students. CCGI has a waiting list of other school districts they do not yet have the capacity to serve. CCGI also is forming a partnership with the CCCCO that will allow them to share student data with all 113 community colleges, as well as the 23 CSU campuses now served.

CCGI's aspiration is to create an electronic transcript infrastructure that can support student success by addressing many of the disconnects in the educational pipeline. In doing so, CCGI hopes to increase A-G completion rates, reduce the numbers of students placed into CCC and CSU remedial courses, reduce the cost and improve the quality of counseling and admission decisions, support credit recovery, verify GPA for Cal Grant eligibility, and more.

Labor Market Information

As suggested earlier, educational and workforce institutions, as well as individuals. need good labor market information to make appropriate decisions about course offerings and to make career choices. Although California does not have an overarching approach to labor market information and regional skills gap analysis, California has initiated or is accessing LMI initiatives including:

- ***Employment Development Department's LMI for Educators and Trainers***: LMID's website allows educators to select program codes, occupational codes, and counties to view current positions and annual job openings by occupation. Data are updated about every 18-24 months.

- ***(LaunchBoard and CCC Centers of Excellence) Economic Modeling Specialists International***: This proprietary service provides program-level information to the LaunchBoard on the numbers of people employed in related occupations in the region, projected job openings, and starting and median wages. Technical assistance providers at the CCC Centers of Excellence can also provide colleges with more detailed information from EMSI, including industry and occupational employment reports, college program completion information, demographics, GIS mapping,

business listings, and economic indicators. The information can be sorted by factors such as zip code, county, and time period. The tool does not, however, include data on emerging industries and occupations because it is based on historical labor market information.

- *(CCC Centers of Excellence) Burning Glass Labor Insight*: The Burning Glass Labor Insight proprietary tool provides "real time" labor market information by compiling millions of job postings and resumes, using criteria such as job titles, education levels, certifications, and geographic location. Colleges can request analyses that incorporate Burning Glass data through the CCC Centers of Excellence.

Conclusion

The projects just described are a wealth of good work and represent a major advancement from where California was a decade ago. Yet as promising as many of the initiatives are, they fall short of the yardstick provided by the national Workforce Data Quality Campaign. For the most part, these efforts are not closely aligned so California does not have an effective way to track the thousands of individuals served by education and workforce programs over time, across institutions, and into the labor market. Relatively few institutions are served by the electronic transcript system, which remains separate from the other data efforts just described. California's efforts to conduct regional skills gap analyses are fragmented and largely isolated from the other data systems.

Given the size and complexity of California's educational and workforce infrastructure, the notion of a fully integrated system may be both unrealistic and undesirable. On the other hand, failing to develop data systems that can improve student outcomes, inform policy decisions, and increase efficiency would be a mistake. We can and should learn from other states about how to link our data systems, provide broad stakeholder access, and create reports that are useful both to users of our education and workforce systems and to policymakers.

The project is a complex one, both technically and especially politically. An important first step would be to develop a cross-agency governance structure, which could design and oversee the process of linking our various data systems together, safeguard the integrity and privacy of the data, and make key decisions.