Developing a Research Agenda for the California Data System and Evaluating Transfer Outcomes: Research Agenda Subcommittee Brief

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In 2019, California enacted the Cradle-to-Career Data System Act (Act), which called for the establishment of a state longitudinal data system to link existing education, social services, and workforce information.[1] The Act also spelled out a long-term vision for putting these data to work to improve education, social, and employment outcomes for all Californians, with a focus on identifying opportunity disparities in these areas.

The legislation articulated the scope of an 18-month planning process for a linked longitudinal data system. The process will be shaped by a Workgroup that consists of the partner entities named in the California Cradle-to-Career Data System Act.[2] Suggestions from this workgroup will inform a report to the legislature and the designs for the state data system to be approved by the Governor's Office. Because the legislation specified a number of highly technical topics that must be addressed as part of the legislative report, five subcommittees were created that include representatives from the partner entities and other experts. The Research Agenda Subcommittee will help to

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1 Read the California Cradle-to-Career Data System Act at:
https://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=EDC&division=1.&title=1.&part=7.&chapter=8.5.&article=

2 The partner entities include the Association of Independent California Colleges and Universities, Bureau for Private Postsecondary Education, California Community Colleges, California Department of Education, California Department of Social Services, California Department of Technology, California Health and Human Services Agency, California School Information Services, California State University, California Student Aid Commission, Commission on Teacher Credentialing, Employment Development Department, Labor and Workforce Development Agency, State Board of Education, and University of California.

identify parameters for research on the six priority areas spelled out in the legislation: long-term outcomes of early childhood services, long-term outcomes of primary school interventions, college readiness for high school students, timeframes for community college students to transfer and earn baccalaureate degrees, impacts of financial aid on educational and career outcomes, and employment outcomes after students exit education (see the box on page 4 for the specific questions listed in the legislation).

This brief provides a discussion framework for members of the Research Agenda Subcommittee. It includes background information on the rationale for a state data system and the authorizing legislation. It then describes the importance of crafting an effective research agenda while highlighting the successful prior work of two states. The brief then focuses on one of the six priority areas outlined in the Act: how long it takes students who transfer from community college to the University of California, the California State University, or another four-year postsecondary education institution to graduate with a baccalaureate degree (each meeting of the Research Agenda Subcommittee will focus on one of the priority areas). The brief concludes with framing questions that the Subcommittee will consider at their first meeting, in order to recommend which transfer-related questions should be prioritized in the first phase of state data system development.

The California Cradle-to-Career Data System Act

In 2019, California enacted the Cradle-to-Career Data System Act, which outlined the scope of an 18-month planning process for a P20W system, allocated $2 million to support that process, and earmarked an initial $10 million toward the development of a state data system.

The Act also laid out a long-term vision for putting data to work to improve outcomes for all Californians, with a focus on identifying disparities in opportunities. By securely linking data that schools, colleges, social service agencies, financial aid providers, and employers already collect, the data system will:

- enable users to identify the types of supports that help more students learn, stay in school, prepare for college, graduate, and secure a job;
- provide information that teachers, parents, advisors, and students can use to identify opportunities and make decisions;
- help agencies plan for and improve education, workforce, and health and human services programs; and

- support research to ensure policy effectively supports individuals from birth through career.

Recognizing that the data system will need to be built in phases, the California Cradle-to-Career Data System Act lays out several priorities:

- **Linking existing information in the system.** The first data sets to be linked should be existing K–12 and college data sets, followed by employment and earnings data, early childhood education information, and social services information, although this order can be amended. Included in this priority is the need for the new data system to disaggregate information by several student characteristics in order to identify equity gaps.
- **Guaranteeing privacy and security.** The system cannot be built until clear guidelines and legal agreements have been established to ensure that information will be securely gathered and stored in compliance with federal and state laws and in accordance with privacy best practices, and that the identity of sensitive populations will be protected.
- **Providing information for students, families, and educators.** The system will include an interface for sharing information with teachers, parents, advisors, and students.
- **Facilitating analyses for researchers and policymakers.** The system will link data between agencies to help answer foundational questions about the impact of state policies and investments (see box on page 4).
- **Assuring quality.** The legislation addresses the need to improve the quality and reliability of education information, both within and between agencies and other entities providing data.

Priority Policy Questions from the California Cradle-to-Career Data System Act

Without a state data system that links information between agencies, it is difficult to answer foundational questions about the impact of state policies and investments. Legislators identified the following topics, which the state data system must be able to address:

- The impact of early education on student success and achievement as a student progresses through education segments and the workforce;
- The long-term effect of state intervention programs and targeted resource allocations in primary education;
- How prepared high school pupils are to succeed in college;
- How long it takes students who transfer from community college to the University of California, the California State University, or another four-year postsecondary education institution to graduate with a baccalaureate degree;
- College access, completion, and long-term effects of access to state financial aid; and
- The workforce effect of graduation from high school, community college, and four-year postsecondary education institutions.

Priorities for Phase One of the Data System

In the first meeting of the Workgroup, the partner entities recommended that the California Cradle-to-Career data system should be an ecosystem that allows for various tools, processes, and resources to be developed under a governance structure. In its first phase, the state should build a P20W data set that includes early care, K–12, postsecondary, financial aid, and employment information. This data set should be used to create dashboards that provide useful information for practitioners and the public, as well as query tools that allow for more nuanced analyses. The P20W data system should be paired with a clearly defined process to link additional data points as needed to answer inquiries, including requests from outside entities such as researchers, policymakers, and regional partnerships, as well as to foster the secure

exchange of information between partner entities. Finally, the Workgroup recommended that the state develop tools that provide information directly to individuals or allow teachers and counselors to better understand the needs of the people they serve. Possible options will be examined at the February 2020 Workgroup meeting, based on tools that have been built in other states or developed in California but not implemented statewide, such as alerting students about the social service and health benefits that they are eligible for, informing educators about services that a student is receiving, or creating an e-transcript service to support college and financial aid applications.

Crafting a Research Agenda

A research agenda is a plan that focuses on issues and ideas that are of greatest current interest or need. A good research agenda

- is shaped around challenges of practice, policy, and implementation;
- helps data system staff and stakeholders understand research goals;
- guides priority areas for conducting and reporting on research; and
- changes over time as interests, priorities, and needs shift, as knowledge increases, and as new research questions emerge.

– Institute of Education Sciences, 2015

Developing a research agenda is central to the establishment of a state data system because it formalizes the state's priority policy questions. The research agenda becomes a central document that can inform governance frameworks, communication with the field, and resource allocation.

Crafting the agenda also creates an opportunity to engage critical stakeholders, which is a key factor in the implementation of a state data system (Data Quality Campaign, 2010). To be sustainable, a research agenda must be affirmed by stakeholders, have widespread use, bring sufficient return on investment, and have financial support (Institute of Education Sciences, 2016). Spelling out the questions also provides a blueprint for how the underlying data should be aligned.

The Institute of Education Sciences State Longitudinal Data System Grant Program has authored a number of documents that describe how to craft a research agenda, which will form the basis of the Research Agenda Subcommittee meetings.[3]

Some suggestions for developing a research agenda include:

- Bring together stakeholders to clarify the most relevant priorities and challenges, based on existing resources and committees
- Establish goals and purposes for the research agenda
- Clarify who the intended audience is
- Create transparency and accountability mechanisms for the agenda, such as publishing the research agenda and setting publication deadlines
- Bring together a core group of informed stakeholders to review research results before they are published
- Ensure the research conducted using the data system will be made publicly available
- Develop a process for reviewing the research agenda periodically to ensure that it continues to be relevant and providing ongoing communication about research being conducted
- Encourage researchers across the state to conduct work related to priorities described in the research agenda (Institute of Education Sciences, 2015)
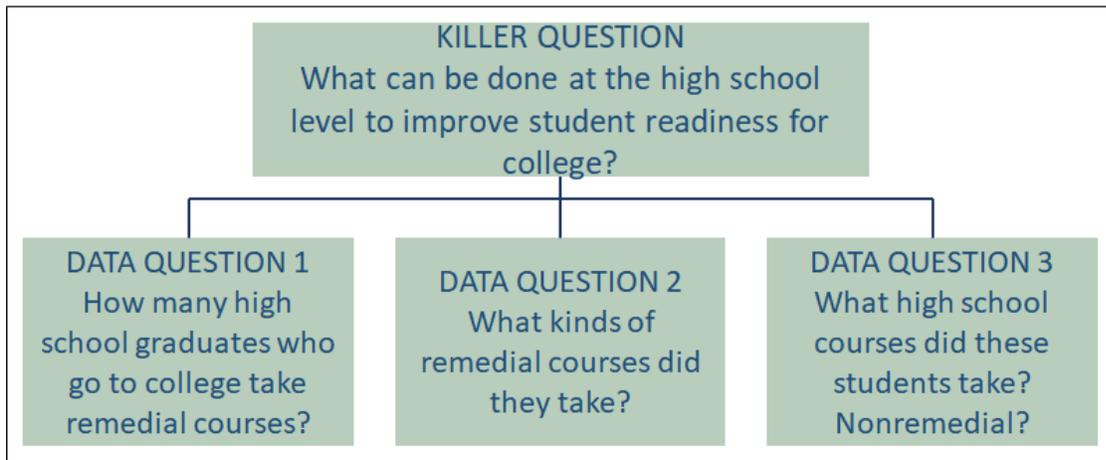
In addition to these resources, the Data Quality Campaign (DQC) highlights two strategies for crafting research questions, identifying audiences, and listing data points.

New Mexico's approach to forming a research agenda was to identify a list of "killer questions," described by DQC as key policy questions repeatedly asked by districts and states with access to good data. The staff within the New Mexico Office of Education Accountability who developed this approach then connected each key policy question with a number of prerequisite data questions. The process carried out in New Mexico created a series of relationships resembling tree diagrams, with a key policy question connected to a subset of related data questions. Figure 1 below illustrates these relationships for one key policy question. A template for replicating New Mexico's approach is also available online.[4]

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3 See the SLDS research agenda toolkit here: https://slds.ed.gov/#program/research-agenda-toolkit

4 See the template here: https://files.eric.ed.gov/fulltext/ED538588.pdf

Figure 1: New Mexico

KILLER QUESTION
What can be done at the high school level to improve student readiness for college?

DATA QUESTION 1
How many high school graduates who go to college take remedial courses?

DATA QUESTION 2
What kinds of remedial courses did they take?

DATA QUESTION 3
What high school courses did these students take? Nonremedial?

Source: Data Quality Campaign, 2010.

South Carolina's approach was to conduct a landscape review of the universe of research questions asked by organizations and researchers in other states. They then reduced this expansive list of 400 questions to those that could be answered with data already quickly and easily available to researchers in South Carolina. Ultimately, they arrived at six questions, which they categorized and divided into related subtopics. Staff then identified potential users who might be interested in the subtopic areas and the level of data each user would need. Figure 2 below illustrates South Carolina's process.

Figure 2: South Carolina

Question: What are the course grades for students enrolled in Advanced Placement (AP) courses?

Category: **Students**	Topic: **Enrollment**	Subtopic: **AP**	Role: Top state education agency staff, student-level data; classroom teacher, limited student-level data
	Topic: **Test Results**	Subtopic: **Course Grades**	Role: Principals, student-level data; other school staff, aggregate data only

Source: Data Quality Campaign, 2010.

Regardless of the process used, it is important to note that the research agenda can and likely will change over time, perhaps in response to developments in policy, state interventions, or educational technologies. Such developments may require the collection of new data elements or render the collection of others no longer necessary. Therefore, it is important that, in addition to adopting a process to arrive at an initial research agenda, states establish both a body and a process to review and update the research agenda. The state of Maryland, for example, has a 12-member governing board that, among other responsibilities spelled out in statute, is responsible for establishing and reviewing the research agenda.[5]

Developing A Research Agenda for Community College Student Transfer

This paper addresses one of six policy areas named in the California Cradle-to-Career Data System Act: the time it takes community college transfers to earn a baccalaureate degree. It also addresses other important issues related to community college student transfer that have been researched using linked, intersegmental data. In developing questions that are specific to post-transfer outcomes, the Research Agenda Subcommittee will help to identify which underlying data elements should be included in the P20W data set and how this information could be displayed in dashboards that would be useful for practitioners and the public. The other five policy areas will be addressed in subcommittee meetings between March and August 2020.
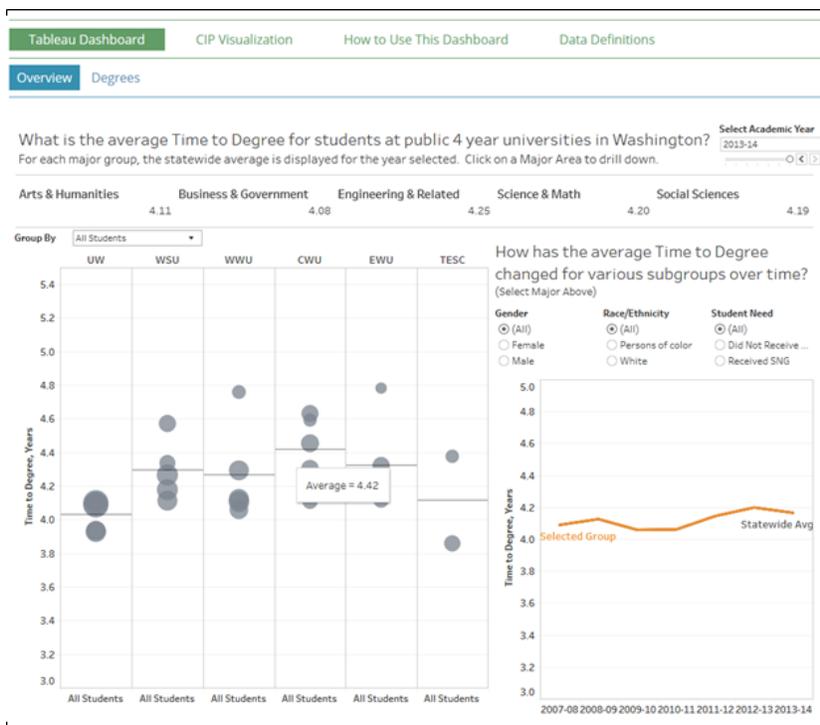
As open institutions of higher education, community colleges increase opportunity, access, and mobility for a diverse spectrum of students, including those traditionally underrepresented in California higher education. Among other institutional missions, community colleges serve a key role in preparing students for transfer to four-year institutions. Examining whether community colleges are accomplishing their transfer mission is essential given the projected need for one million additional bachelor's degree holders in California (Johnson, Cuellar-Mejia, & Bohn, 2015). Doing so is also essential given nearly all "good jobs"—defined by researchers at the Georgetown Center on Education and the Workforce as jobs paying an annual salary of $50,000 or more—are going to workers with bachelor's degrees (Carnevale et al., 2018).

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[5] See the Maryland Education Code here:
    http://mgaleg.maryland.gov/2020RS/Statute_Web/ged/ged.pdf

Time-to-Completion

A number of states have used their data systems to track time-to-completion, but usually in the context of just community college or four-year institution outcomes. **North Dakota**, for example, used state data to explore and report on-time associate degree completion for community college students assigned to remedial and non-remedial coursework (North Dakota State Longitudinal Data System, 2015).[6] **Texas** used its state data system to construct the Texas Consumer Resource for Education and Workforce Statistics dashboard, which reports average time-to-degree by academic program and institutional level (Texas Consumer Resource for Education and Workforce Statistics, 2020).[7] **Washington** also used state data to create interactive visualizations of time-to-degree at four-year colleges (Education Research & Data Center, 2020; see Figure 3).[8]

Figure 3: Time-to-degree in Washington

Source: Education Research & Data Center, Washington, 2020.

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6 See the North Dakota report here: https://www.slds.nd.gov/sites/www/files/documents/pdfs/Effect-of-Remediation-NDUS-CC-2-2015.pdf

7 See the Texas dashboard here: http://board.thecb.state.tx.us/apps/txcrews/

8 See the Washington visualization here: https://erdc.wa.gov/data-dashboards/time-degree-visualization

The **Iowa** Department of Education included a discussion of average time-to-degree in its Condition of Community Colleges annual report, including a brief discussion of time-to-degree by race/ethnicity (Iowa Department of Education, 2018; see Figure 4).[9] **Louisiana** appears to be the exception among states with established data systems and, in addition to reporting time-to-degree for first-time freshmen at two- and four-year institutions, reports time-to-degree for transfer students in its *Higher Education State Fact Book* (Louisiana Board of Regents, 2019).[10]

Figure 4: Time-to-degree in Iowa
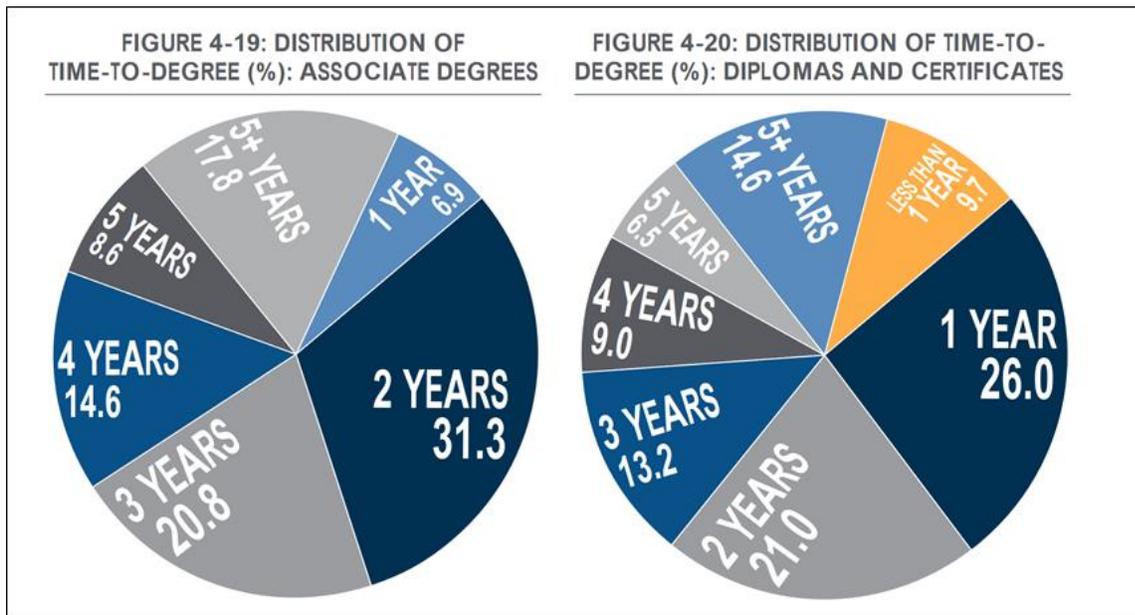
Source: Iowa Department of Education, 2018.

While few states have used their longitudinal systems to calculate time-to-degree, this concept has been examined using other linked data sets. These examples are useful because they show the different ways that researchers have approached the question of time-to-degree and what they chose to emphasize.

In **California**, the Campaign for College Opportunity reported that community college students transferring to the University of California or California State University needed

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9 See the Iowa report here:
https://educateiowa.gov/sites/files/ed/documents/2018ConditionofCommunityColleges.pdf

10 See the Louisiana report here: http://as400.regents.state.la.us/pdfs/Retention/hesfb/Louisiana-Higher-Education-Fact-Book.pdf

6.4 and 7 years to earn bachelor's degrees, respectively (Campaign for College Opportunity, 2017). This timeframe may be partially explained by the time it takes for community college students to attain transfer status. In a national study, researchers at the National Student Clearinghouse found that just 14.7 percent of community college students earned associate degrees within two calendar years and that students took, on average, one or more years longer to complete an associate degree than what is prescribed (Shapiro et al., 2016).

Researchers with the Institute of Education Sciences used a nationally representative sample of postsecondary students to find that bachelor's degree recipients who began their postsecondary journeys at community colleges required more than five years—an average of 68 months—to earn their degrees. Bachelor's recipients who began at four-year institutions completed more than one year faster, at 52 months (Velez et al., 2019). Using data produced by the National Center for Education Statistics, researchers also found that community college students required more time to complete bachelor's degrees than students who began immediately at four-year schools and noted that extended enrollment periods were even more common among academically underprepared college entrants (Bound et al., 2012).

Litchtenberger and Dietrich (2017) found that while community college students incurred an initial time penalty for degree completion, students who started at a two-year or four-year college took a similar amount of time to earn their degree if they were enrolled for six or more years. By contrast, Long and Kurlaender (2009) found that **Ohio** community college entrants were less likely to earn bachelor's degrees within nine years.

Other Post-Transfer Research Questions

Beyond questions related to time-to-degree, the availability of linked, intersegmental data has allowed researchers to address the ways in which time-to-degree can be reduced through education technology (Sublett, 2019) or dual enrollment (Community College Research Center, 2012), as well as how transfer rates can be increased through guided pathways initiatives (Edgecombe, 2011) or two- and four-year college partnerships (Xu et al., 2018). Importantly, quality intersegmental data have also been used to illustrate the ways in which educational attainment among transfer students is stratified by income (Jenkins & Fink, 2016).

Given that current improvement strategies have not significantly increased the number of community college students who transfer to four-year institutions in California (Gordon, 2019), it will be important to determine the types of information that educators and policymakers could use to focus their future efforts. See the box on page 13 for topics that the Research Agenda Subcommittee can consider.

Potential Research Questions

Members of the Policy & Analytics Advisory Group were asked to weigh in on priority research questions regarding community college transfer. They suggested the following topics:

- How long were students enrolled in two-year colleges before they transferred? How long were they enrolled in a four-year institution before earning a bachelor's degree?
- How does total time to a bachelor's degree compare between students who enrolled directly into a four-year institution versus those who transferred from a two-year institution?
- What types of financial aid did transfer students apply for and receive after they transferred?
- What types of classes do students take after they transfer and do they succeed in these classes?
- What is the most effective way to reduce time to degree and rate of completion for the largest number of students?
- What impact have associate degrees for transfer had on bachelor's degree attainment and what factors contribute to stronger outcomes?
- Have intersegmental efforts to boost transfer and completion been successful?

Preparing for the Subcommittee Meeting

This paper raises a number of possible questions that the California data system could help to answer about the post-transfer outcomes of community college students. At the February 2020 meeting, subcommittee members will be asked to weigh in on the following topics:

- Under the broader question of time-to-bachelor's degree for community college transfers, what should be investigated? For example, should results be broken out by specific populations of students or should there be comparison data to students who enrolled directly in a four-year institution?
- Should the research agenda encompass the topics suggested by the Policy & Analytics Advisory Group? What additional questions regarding post-transfer outcomes should be part of the research agenda?
- For the research agenda questions, who would find the information useful and how would they use it?
- What data elements are needed to answer the research agenda questions?
- What information related to the research agenda should be made available on a public dashboard or in a query tool?

Future meetings will address similar questions for the remaining five priority areas for the research agenda.

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