CRADLE TO CAREER DATA SYSTEM:
WHAT LESSONS CALIFORNIA CAN LEARN FROM OTHER STATES

A Policy Paper

by

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Executive Summary

Of

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INTRODUCTION

Despite being a national leader in many technological and educational fields, California is currently one the 10 states that does not have a statewide longitudinal data system (SLDS). However, this all changed when Gavin Newsom became California's chief executive in 2019. In July 2021, Governor Newsom signed Assembly Bill 132 (Statutes of 2021) into law, which officially established the Cradle to Career Data System. This launched a multi-year effort to link data on student progress as pupils matriculate through their education and into the workforce. The purpose of this report is to provide several crucial recommendations on how the state should build out its SLDS, based on other states, as it begins to implement the initial phases.

LITERATURE REVIEW

To understand the context of building out a SLDS, I reviewed several academic articles on the subject and found the following three recurring themes: (1) the importance of sharing data and eliminating silos among the participating agencies, (2) the establishment of the system's shared goals in relation to statewide education priorities, and (3) ensuring that the student data is stored properly and securely.

PRIMARY ANALYSIS

I briefly analyzed the data security, governance structure, and K-12 data metrics that Washington, Oregon, and Minnesota utilize in their SLDS. I also looked at the scores each state received from the Data Quality Campaign (DQC), a nonprofit, nonpartisan national advocacy organization that evaluates each state's SLDS to determine how effectively the state uses their data system for education improvement purposes. All three states provide robust K-12 datasets into their SLDS that include key demographics of students. Additionally, while all three states have done a good job implementing DQC's 10 essential elements of a SLDS, all three states had trouble fulfilling all the 10 state actions defined by the DQC.

POLICY RECOMMENDATIONS

From my literature review and analysis, I offer the following recommendations for California to consider as it builds out its SLDS over the next several years:

1. Use the DQC's 10 Essential Elements and 10 State Actions as a guide/north star
2. Establish a new state department to govern and manage the SLDS
3. Leverage existing data systems like the California Longitudinal Pupil Achievement Data System and include robust datasets in the SLDS
4. Establish a partnership with Oregon and Washington on data collection and reporting

CONCLUSION

California is poised to make similar mistakes as other states implementing their SLDS. Solutions for ensuring a smooth implementation and an effective SLDS will require strong partnerships with the agencies that are providing the data and strong leadership from those who will manage the system. It is important for California to consider the successes and failures of those states that implemented their SLDS before them and the recommendations provided in this report.

INTRODUCTION

Statewide Longitudinal Data Systems (SLDSs) are utilized by a vast majority of states for a range of purposes, including analyzing student progression within and across education systems and into the workforce. The Education Commission of the States highlights the importance of engaging at least four core entities within any SLDS: early childhood education, the K-12 system, postsecondary education, and the workforce (Education Commission of the States, 2019). While all 50 states can connect data between the core systems, there are still 10 states that currently do not connect data between at least two of the core systems that make up a SLDS.

Despite being a national leader in many technological and educational fields, California is one the 10 states that currently does not have a data system that connects at least two core segments. However, this all changed with California Governor Newsom in 2019 when he made building out a SLDS a priority. The purpose of this report, which satisfies the culminating project requirement for a Master's Degree in Public Policy and Administration at Sac State, is to provide several crucial recommendations on how the state should build out its SLDS as it begins to implement the initial phases. To do this I will use this introductory section to provide background information on the topic including how the California K-12 system is governed and funded. In the second section I provide a review of the literature on SLDSs. While in section three I offer an analysis of three states with SLDS and the key metrics that they use for their system. Section four offers recommendations on how to build out California's system, and finally there is a concluding section that ties the report together and offers some insight for future work that should be considered.

Why are SLDSs Important?

In September 2018, more than 100 educational researchers released "Getting Down to Facts II," encompassing more than 36 studies and 19 briefs that examined California's K-12 system over the past decade (Hough, et al., 2018). One of the conclusions that came out of these reports was that despite the investments within individual data systems, the state still falls short of what other states have developed in terms of tracking student progression as they matriculate through the education segments and into the workforce. Additionally, the Public Policy Institute of California (PPIC) has published reports that describe California's education data systems as fragmented and find that an integrated data system would show whether the state's educational policies are improving student outcomes. Without an integrated SLDS policymakers and education stakeholders are not able to answer critical questions about student progress, limiting their ability to make evidence-based changes to narrow the opportunity gaps between low-income students and their high-income peers. Zeroing in on where these opportunity gaps persist has become even more critical as data show that the COVID-19 pandemic has exacerbated the gap between high income and low-income peers even further.

Governor Brown to Governor Newsom

While former Governor Jerry Brown, who termed out after eight years (2011-2019) of being California's chief executive, was opposed to implementing a data system that connected these core segments, current Governor Gavin Newsom has made establishing a SLDS a priority for his education legacy. His first State Budget, which he signed into law on June 27, 2019, included a one-time $10 million investment to plan out a longitudinal data system that connects student information from early childhood education through college and into the workforce, not unlike the systems being utilized in other states. Governor Newsom believes that connecting

these data systems and seeing how students matriculate from education and into the workforce can help highlight areas where intervention is needed to address opportunity gaps.

The 2019-20 California State Budget established the Cradle-to-Career Data System Workgroup, which was tasked with submitting three reports to the Legislature that provided an assessment, recommendations, and advice about statewide data infrastructure that will integrate the data from the participating state entities. Following the workgroup's final report, Governor Newsom signed Assembly Bill (AB) 132 (Statutes of 2021) into law in July 2021. AB 132 officially creates the Cradle to Career Data System (C2C Data System), which will be a multi-year effort to link data on student progress as pupils matriculate through their education and into the workforce. The bill also designates the Government Operations Agency to implement the C2C Data System and outlines the creation of a C2C Governing Board. The governing board is comprised of 21 members, including representatives from the California Department of Education, the three higher education segments, various other state departments, eight members of the public appointed by the Governor and Legislature, and two representatives of the Legislature.

With the dramatic shift in policy from the Brown Administration to the Newsom Administration, it is important for the C2C Data System governing board, state lawmakers and education stakeholders to consider what metrics other states have used in their SLDS. It will be prudent for the governing board to consider the governance structure, design, and goals of other states' SLDS and how they are using their data systems to highlight the opportunity gaps between key student demographics. This report will examine the SLDS of three states and the governance and data structure that they utilize. From that analysis I will derive recommendations for how California should begin its implementation of its SLDS to ensure its success.

The remainder of this section provides important background information, including an overview of the governance structure of California's K-12 education system, how education is funded in the state, and the current political landscape in California. It is important to consider this information because understanding the governance structure, funding, and politics is key in ensuring that a SLDS can be successfully implemented.

K-12 Governance Structure and Funding

It is important to understand California's K-12 governance and funding structure as it was restructured under the Local Control Funding Formula (LCFF) with the goal of directing dollars to low-income students and English learners to better close the opportunity gaps between the state's highest achieving and lowest achieving learners.

K-12 Governance Structure

With nearly 6 million students, more than 315,000 teachers, and over 1,000 school districts, the K-12 system in California is by far the largest in the nation (California Department of Education, 2019). In terms of governance, there are four main entities that are responsible for governing the K-12 system: the Governor who proposes the state's education budget and signs and vetoes education legislation, the Legislature who approves the state's education budget and legislation, the State Board of Education (SBE) who issues regulations and considers waiver requests from school agencies, and the Superintendent of Public Instruction (SPI) who is the administrative head of the California Department of Education (CDE), which is the state agency that administers education programs and distributes funding to local educational agencies (LEAs), which are defined as school districts, county offices of education, and charter schools (LAO, 2018).

While the governance roles of the Governor and the Legislature are straightforward when it comes to K-12 education, the roles that the SBE and the SPI play are much less clear. The 11 members of the SBE are appointed by the Governor and given limited responsibilities in the state's constitution. The SPI is a nonpartisan office that is elected by the voters every four years and there are no specific duties assigned to the office under the state's constitution. While the constitution gives both the SBE and SPI limited direction, state law has established other responsibilities for the two entities that help provide some basic principles to define their relationship. State law has given the SBE the power to determine all questions of K-12 policy while the SPI is directed with executing the policies of the state board as the administrative head of the CDE (LAO, 2018). In other words, the SBE approves regulations to implement the K-12 legislation passed by the Legislature and signed into law by the Governor, while the SPI oversees administering those education programs and distributing state funds to LEAs.

Since K-12 education programs and funding are administered under the CDE, they also maintain the system's main centralized database, the California Longitudinal Pupil Achievement Data System (CALPADS). CALPADS is a statewide system that stores individual-level longitudinal data on students and certificated staff in California's public schools. The system has been operational since 2009 and was created to ensure that California was meeting federal education requirements. To track the data each student receives a unique 10-digit number called a Statewide Student Identifier (SSID). The student is assigned a number when they enroll in a LEA (school district, county office of education, or charter school), which allows the CDE to calculate a number of important data points including four-year cohort graduation and dropout rates, LEAs' unduplicated pupil percentage (English learners, low-income, and foster youth), chronic absentee rates, course enrollment, test scores, and reports to meet federal and state

requirements (Ed-Data, 2017). The data in CALPADS is also used to produce accountability reports for the California School Dashboard (Dashboard), which helps fulfill the accountability requirements for the Local Control Funding Formula (state law) and Every Student Succeeds Act (federal law). However, despite its importance in tracking K-12 students and fulfilling accountability requirements, the system is not integrated with any of the other core education entities including ECE and the high education systems (Phillips, 2018).

K-12 Funding Structure

K-14 education in California is funded by Proposition 98, which is a 1988 statewide initiative that was passed by voters to set a minimum annual level of funding for K-12 schools and community colleges. Proposition 98 is a very complex formula, but the basic purpose is to provide K-14 schools with guaranteed funding based on the economy and number of students in the system. The funding is provided through a combination of state funds and local property tax revenues and there are three "tests" that determine the level of Proposition 98 funding with K-12 education historically receiving approximately 89% of the allocation with the CCC receiving 11%.

In 2013, Governor Jerry Brown significantly altered the way California funds its K-12 schools via the LCFF. The LCFF replaced the old K-12 funding model of "revenue-limits," which included numerous restrictive categorical programs that constrained how school districts could spend their money. The LCFF simplified the K-12 funding model by creating three grants for districts: base, supplemental, and concentration. The base grant is provided to districts based on the per unit average daily attendance (ADA). The supplemental and concentration grants are provided to districts based on their unduplicated pupil percentage (UPP), which are the following targeted disadvantaged students: English learners, low-income students who qualify for free or

reduced-price meals, and foster youth. Districts receive a supplemental grant equal to 20% of ADA for each UPP unit and a concentration grant equal to 50% of ADA for each UPP unite above 55% of a district's enrollment (CDE, 2019). It is important to note that the LCFF has no effect on the minimum funding levels set by the tests of Proposition 98, meaning Proposition 98 sets the top-line spending levels for K-14 education while the LCFF is the primary method that the state allocates the K-12 funding to school districts. The LCFF requires LEAs to draft and submit Local Control Accountability Plans (LCAPs), a three-year plan that describes the goals, actions, services, and expenditures that address state and local priorities. The LCAP provides an opportunity for local educational agencies LEAs to share their stories of how, what, and why programs and services are selected to meet their local needs and how that funding is directed to the students that generate those dollars.

State Politics

Now that I have provided an overview of the governance structure and funding models for K-12 education in California, it is important to discuss the current political climate in the state, including the influence of the California Teachers Association (CTA).

Like the federal government, California operates with three main branches of government: the executive branch (Governor's Office), the legislative branch (the Assembly and the Senate), and the judicial branch (the California Supreme Court and lower courts). Politically, California is dominated by Democrats. Both houses of the state Legislature have been in Democratic hands since 1970, with the exception of 1995 and 1996, when the Republicans gained brief control of the Assembly. Additionally, Republicans have not won a statewide election in the Golden State since 2006, which is when former Governor Arnold Schwarzenegger won reelection to his only full term as California's chief executive. In addition to holding all of

the statewide offices, Democrats will also begin the 2023-24 Legislative Session with a comfortable supermajority in the bicameral Legislature with 62 Democrats and 18 Republicans in the Assembly and 32 Democrats to 8 Republicans in the Senate. The two-thirds Supermajority allows Democrats to pass tax increases and urgency measures (legislation that goes into effect immediately upon gubernatorial signature) without Republican support.

Education decisions in the state are significantly influenced by the CTA, arguably the most powerful employer union in the state. CTA donates almost exclusively to the state's Democratic candidates, and they have successfully shaped education policy in the state with their legislative advocacy. The CTA is an important entity to consider as the C2C Data System gets built out over the next several years as they will likely influence the metrics that are included in system. The worry could be that the system could be used to question the union's long-standing instance on a step-based compensation system that does account for differences in the productivity of teachers at influencing student outcomes. Furthermore, the CTA's powerful influence is something that I will consider as I offer my recommendations at the end of this report.

LITERATURE REVIEW

To understand the context of building out statewide longitudinal data systems (SLDSs), I reviewed several academic articles on the following topics: integrated education data systems, how states implemented their integrated data systems, and how states are using these systems to inform policy to improve student outcomes. While the complexities of the individual systems and the different state contexts limits the available research, there are some valuable themes that will be important to consider for the context of this report. I have organized this literature review into the following three key themes: (1) the importance of sharing data and eliminating silos

among the participating agencies, (2) the establishment of the system's shared goals in relation to statewide education priorities, and (3) ensuring that the student data is stored properly and securely. I compare these themes to the current situation California is in with its state education entities that are involved in the construction of the state's SLDS. I then conclude the literature review by summarizing the important findings and discussing how this research will inform the rest of this report.

Sharing Data and Eliminating Silos

The literature shows that for a SLDS to be effective in meeting the state's goals for the system, the participating entities must be able to share existing data, work collaboratively, and tear down the systematic silos that are common among governmental agencies (Rippner, 2015). Currently, the education entities that house California's data from early learning (pre-kindergarten), K-12, and the three higher education segments is decentralized, not collected collaboratively, and does not track students as they matriculate in and out of the various education systems (Moore, Bracco & Nodine, 2017). Practitioners call this decentralized approach a "compliance approach to data," meaning that the current data systems are in place primarily to comply with the minimum level of state and federal reporting requirements (Moore, Bracco & Nodine, 2017). The literature shows that for California to effectively build out their SLDS they will need to work collaboratively so that their integrated data system can effectively track student outcomes and progression (Conaway, Keesler & Schwartz, 2015). To effectively track student progress, the SLDS should establish a unique statewide student identifier for each individual student, not unlike the student identifier used in the K-12 CALPADS system, beginning with the pre-Kindergarten programs (Conaway, Keesler & Schwartz, 2015). Establishing the student identifier in the early childhood education programs gives the state a

fuller picture of student progression and allows for more accurate reports on student outcomes and where the opportunity gaps are the most prevalent (Hearn, McLendon & Mokher, 2008).

Establishing a unique student identifier is a critical first step in building out a SLDS, but to generate the reports needed to analyze whether the state's education policies are being effective in improving student outcomes and preparing students for postsecondary and career success, it is crucial for the relevant agencies in the core education systems to work collaboratively and connect their databases in a way that allows for effective student tracking (Hearn, McLendon & Mokher, 2008). Only when the agencies agree to tear down their silos and share their data with the other core education segments can a SLDS be effective and produce accurate data in crucial areas such as student-level enrollment and demographics, grades, course-taking patterns, program participation, standardized test results and year to year growth, student-level transcript information, student-level college readiness test numbers, high-school graduation rate, chronic absenteeism rates, and various other metrics that help tell the story of how students are performing and how prepared they are for college and career success (Hearn, McLendon & Mokher, 2008).

However, silos do not exclusively exist at the top-level of the various core education segments, but also at the staff level in those agencies as well (Rippner, 2015). This means that silos exist not only between agency heads but also within the individual agencies. The literature finds that many at the staff level believe that they can "wait out" an initiative or policy until a new agency head comes in or the momentum of that new reform passes (Rippner, 2015). To break down these silos, it is crucial for leadership to be strong and alter the culture in a way that gets the staff to buy into the merits of a SLDS (Rippner, 2015). Several states, including Georgia, Illinois, and Minnesota, tackled this silo issue by creating P-20 councils (preschool through

college and into the workforce) as part of their SLDS implementation (Rippner, 2015). These councils are comprised of various education agency and state leaders to help foster the collaboration among state agencies, education institutions, local schools, community stakeholders, employers, and citizens, and to collectively identify needed reforms to develop a seamless and sustainable statewide system of quality education and support (Rippner, 2015). These councils are effective in helping states overcome structural barriers to SLDS collaboration and data sharing, and thus have been implemented by numerous states as part of their SLDS implementation.

The other important element to sharing data and creating a SLDS with multiple education sectors is to reconcile the technical differences from the independent data systems (Conger, 2008). To build out a SLDS that effectively tracks students as they matriculate through the core education segments it is important for the agencies represented in the SLDS to come to some agreement on common standards and data metrics within the SLDS, so that the system is uniform, and the data is accurate (Conger, 2008). To ensure the data quality of the integrated system, it is imperative that the agencies represented in the SLDS decide on common standards, agree on common data elements, and build the system out incrementally to manage expectations (Conger, 2008). To ensure the data quality, the literature tells us that it is important for the agencies involved to agree on a data entry process, a quality assurance practice, and a system in place for data audits (Conger, 2008). By implementing these various elements, the agencies can begin to build out a system that tells the educational journey of each individual student from the early childhood years into the workforce.

However, once the core education segments begin to terminate the silos and start working collaboratively on statewide education priorities, they must be able to set shared goals between

the segments to ensure that the data being collected is useful in evaluating if the state and the individual education sectors are fulfilling their educational priorities and goals (Thorn and Meyer, 2006).

Establishing Shared Goals Tied to Statewide Education Priorities

The literature discusses the importance of the participating agencies within the SLDS to establish shared goals and tie them to statewide education priorities. This is an especially important step once the participating agencies agree to start sharing their data with the other systems (Thorn and Meyer, 2006). Historically, the cultures of the core education segments have operated under different missions and mantras, especially the K-12 and postsecondary education sectors (Conger, 2008). The K-12 system has historically focused on equitable opportunity and universal attainment while the university system's core values have historically focused on making access to their system highly selective and advancing the proliferation of scholars (Conger, 2008). This has resulted in the two systems having different governance structures, accountability metrics, political dynamics, policies, etc., making collaboration and shared goals a difficult prospect (Conger, 2008). However, to build out a successful SLDS that captures the data needed to generate reports that create accountability and result in the creation of sound public policy, the various core education systems need to establish shared goals to develop a unifying mission between the sectors (Conger, 2008). According to the literature, the most effective way to create this unifying mission under a SLDS is to establish state priority issues as shared goals among the systems (Thorn and Meyer, 2006). For example, if the state has a priority to improve the rate of successful high school graduate transitions to the four-year university system for Latinx students, this should be a goal that both the K-12 system and the university system can mutually agree on working towards and work collaboratively with each other to successfully

make that goal happen (Rippner, 2015). Once specific shared goals reached, states bring together individuals from the different segments, who have already bought into the collaboration, to engage in collaborative cross-sector strategic planning (Conger, 2008). Leadership in this collaborative effort is very important and thus states should identify committed leaders at all levels to champion these shared goals under their SLDS (Conger, 2008).

Once the agencies within the SLDS are able to share their data and establish shared goals and data processes for their integrated system, the literature tells us it is critical to consider how the data will be stored and secured, especially since the data system will contain a lot of sensitive education information on students (Conaway, Keesler & Schwartz, 2008).

Data Storage and Security

The final theme to consider in this literature review is the importance of SLDS student data storage and security. The literature does not stress enough about the importance of the privacy and data security concerns about the use of student data in the conduct of a SLDS (Conaway, Keesler & Schwartz, 2008). Several of the articles discuss how a SLDS needs to follow the federal Family Education Rights and Privacy Act (FERPA). The FERPA provides privacy protection for individuals by preventing the inappropriate release of education data and sets guidelines for the appropriate use of data for research purposes (Conger, 2018). While FERPA prohibits the public release of personally identifiable student data such as student names and social security numbers, it does allow for the sharing of anonymous data for research and policy purposes (Conger, 2018). This means that when states remove student education data from personally identifiable information and report the data in the aggregate, that data is shareable across systems, which is important in analyzing the success of statewide education policy and identifying where student opportunity gaps persist (Conger, 2018). FERPA sets a very

important standard when building out the SLDS structure, but even if FERPA is fully followed it is also important to ensure parents, schools districts, and individual schools, that the data collected is confidential and that their students' information will not be compromised and will be stored in a manner consistent with the law (Hearn, McLendon & Mokher, 2008). While data storage and security may not be the most exciting theme when it comes to the establishment of a SLDS, the literature makes it clear that it is imperative to consider and implement in accordance with the law before moving forward with using SLDS data to generate reports and make policy changes (Conger, 2018).

California Context and Summary of Findings

Since this report will look to provide some metrics considerations for California's C2C Data System, it is important to consider how the three themes highlighted in this literature review fit into the context of the state's education systems represented in the SLDS. The first theme, sharing data and eliminating silos, could be a difficult first step for California to overcome when it gets to the implementation phase of the SLDS. The reason for this is that not only are the data from California's three core education systems (early childhood education, K-12, and higher education) siloed off from one another, the three segments that make up the higher education system (California Community Colleges, California State University, and University of California) lack a coordinating entity meaning that each individual higher education segment is just as siloed from each other as they are from the early childhood education and the K-12 systems (Moore, Bracco & Nodine, 2017).

The second theme, establishing shared goals tied to statewide priorities, will require the educations sectors in California to work collaboratively to set shared goals based on statewide priorities. While Governor Newsom subscribes to the importance of establishing a SLDS, he has

not really provided a blueprint of statewide education priorities other than verbalizing his commitment to connecting the educations segments so that the state is able to track students from "cradle to career."

The third theme, data storage and security, should be something that the state can implement with fidelity. The reason for this is that while the education systems function in silos, they each have their own data system that must already comply with the federal FERPA law. This means that the leaders that will represent the systems within the SLDS conversation should be well versed on the FERPA law and know what standards to set when considering the implementation plan for the SLDS.

To summarize, these three themes will be something that I will refer to later in the report as I look to establish the key metrics that the C2C Data System implementation team should consider seeing where opportunity gaps begin and persist.

PRIMARY ANALYSIS

For this report I briefly analyze the data security, governance structure, and K-12 data metrics that three other states utilize in their SLDS. Specifically, I looked at the K-12 input metrics from the states of Oregon, Washington, and Minnesota. I also looked at the scores each state received from the Data Quality Campaign (DQC), which is a nonprofit, nonpartisan national advocacy organization that evaluates each state's SLDS to determine how effectively states use their data system for education improvement purposes (State Longitudinal Data Systems Research Project, 2022).

The reason I chose these three states is that they have similar political characteristics as California in that all three will have a Democratic trifecta heading into the 2023 political year.

This means that the Democratic Party controls both chambers of the bicameral state legislature and the governor's office. This is important because state government is ultimately the entity that can make impactful changes to a state's SLDS and thus comparing states with comparable political configurations will make for more realistic and actionable recommendations at the end of the report. Another reason I chose both Oregon and Washington is that during the COVID-19 pandemic, Oregon, Washington, and California formed a Western States Pact on a shared vision for reopening their economies and controlling COVID-19 into the future. I believe that this strong preexisting relationship is leverageable when making my recommendations and that the states could also collaborate on issues such as the most effective data to utilize in a SLDS.

In the rest of this section, I offer a brief description of the education data systems of these three states, and then specifically look at the inputs they use for their K-12 education reports and their scores from the DQR. I will then identify similarities and themes from the three SLDS to begin to form the basis of my recommendations for how California should begin to build out its C2C Data System.

Washington

Washington's SLDS is the Washington State P20W Longitudinal Data System (WSP-20W), and it is managed by the Education Research and Data Center (EDCR), which was established via legislation in 2007 (EDRC, 2020). The EDCR works with partner agencies to conduct data analyses to assist in the decision-making of legislators, educational institutions, researchers, families, and students (EDRC, 2020). The ERDC is governed by three technical advisory committees. One of those committees, the Data Stewards Committee, consists of research staff from institutions that contribute data and is charged with maintaining consistent data definitions and making recommendations for data collection (California Competes, 2018).

The K-12 data that is utilized in Washington's SLDS is provided by the state's Office of the Superintendent of Public Instruction (OSPI). The OSPI annually provides the EDCR with a file of results from the standardized state testing for K-12 schools. Like California, Washington uses the Smarter Balanced assessments, which measures progress of students in third grade through 11th grade (EDRC, 2020). EDRC receives one data file from the OSPI each spring for the Smarter Balanced assessments that covers the previous school year. The data elements for the Smarter Balanced results include the following:

- **Student Data:** Student ID, name fields, date of birth, student name fields, date of birth, school, district, and grade level when tested as well as flags indicating if the student attends private school or is home-based
- **Assessment Information:** test type, test grade level, test administration period (e.g., Spring Test Administration), date the student took the assessment and subject name
- **Assessment Results:** Scale score, performance level, standard met indicator for whether minimum standards met and attempt code (whether the student did or did not take the test and the reason why) (EDRC, 2020)

The Comprehensive Education Data and Research System (CEDARS) contains the student demographic data within the state's SLDS. The data from the CEDARS system is compiled from report sent to the OSPI by each school district in Washington. The information contained in CEDARS covers most administrative data entry for all school districts, covering topics ranging from enrollment to discipline. The CEDARS system represents every enrolled student in a Washington public K-12 school and can be tracked over time through their public education career (EDRC, 2020). The student-level data sets from the CEDARS system includes all students enrolled in every segment of the state's K-12 public schools for each school year and this data enrollment is the basis for loading other

CEDARS-sourced data into the SLDS. Table 1 below shows the demographic data that the CEDARS system uploads ingo the SWP-20W.

While there are a couple of sections that show missing records in the table below, most of the data, including key data on demographics, whether students disabled, and whether they are English learners (EL), are all included with no missing records. These are key data points in determining when opportunity gaps persist as nationally those gaps are usually shown based on these key demographics (race/ethnicity, disability status, and EL status). CEDARS also provides student absence data, which describes the type of absence (full day or partial day and excused or unexcused) and the date of the absence (ERDC, 2020).

In addition to the demographic data inputs, CEDARS also sends robust program data to Washington's SLDS. The program data includes student records from school districts on students who participated in or received services from specific PreK-12 programs, eligibility for free/reduced meals and selected student attributes (ERDC, 2020). There are 49 programs included within this data set, of which 31 are still active as of the 2018 school year, which is the most recent year available for analysis. The data includes the name of the program, the school and district in which the student participated in the program, the date the student began receiving services from the program, the reason they qualified for the program, and the date that the student exited and the reason for their exit (ERDC, 2020).

Table 1: Availability of CEDARS Enrollment Data Elements by School Year

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
School Year	x	x	x	x	x	x	x	x	x	x
District	x	x	x	x	x	x	x	x	x	x
School	x	x	x	x	x	x	x	x	x	x
Is this the School that is Primarily Responsible for the Student?	x	x	x	x	x	x	x	x	x	x
Gender	x	x	x	x	x	x	x	x	x	x
Grade Level	x	x	x	x	x	x	x	x	x	x
Date Enrolled in District	x	x	x	x	x	x	x	x	x	x
Date Exited from District	x	x	x	x	x	x	x	x	x	x
Date Student Enrolled in School	x	x	x	x	x	x	x	x	x	x
Date Student Exited from School	x	x	x	x	x	x	x	x	x	x
School Withdrawal Code	x	x	x	x	x	x	x	x	x	x
School Choice Code	x	x	x	x	x	x	x	x	x	x
Federal Race/Ethnicity Rollup (calculated)	x	x	x	x	x	x	x	x	x	x
Student Primary Language Code	x	x	x	x	x	x	x	x	x	x
Student Language Spoken at Home	x	x	x	x	x	x	x	x	x	x
Graduation Requirements Year	x	x	x	x	x	x	x	x	x	x
Student Expected Year of Graduation	x	x	x	x	x	x	x	x	x	x
Cumulative Grade Point Average	x	x	x	x	x	x	x	x	x	x
Credits Attempted	x	x	x	x	x	x	x	x	x	x
Credits Earned	x	x	x	x	x	x	x	x	x	x
Initial USA School Enrollment	x	x	x	x	x	x	x	x	x	x
Number of Months of Non-US Attendance in School	x	x	x	x	x	x	x	x	x	x
Cumulative Days Present this Enrollment Period	x	x	x	x	x	x	x	x	x	x
Disability Code	x	x	x	x	x	x	x	x	x	x
Disability Flag (calculated)	x	x	x	x	x	x	x	x	x	x
Disability Description	x	x	x	x	x	x	x	x	x	x
Is Student and Approved Private-School Student Attending Class Part Time?	x	x	x	x	x	x	x	x	x	x
Is Student a Home-Schooled Student Attending Class Part time?	x	x	x	x	x	x	x	x	x	x
Is Student from a Foreign Country with an F-1 Visa? (Student Exchange Status)	x	x	x	x	x	x	x	x	x	x
Is Student Homeless?	x	x	x	x	x	x	x	x	x	x
Military Parent or Guardian								x	x	x
Confirmed Transfer In										x

**Source: Washington State P20W Longitudinal Data System Research Handbook*

CEDARS also provide robust special education data to the WSP-20W. Special education services have been a federal mandate since 1975 when the Education of Handicapped Children Act was approved, thus making this data critical in ensuring that mandate is followed. In 1990, the federal government amended this mandate and changed to the name to the Individuals with Disabilities Education Act or IDEA (Center for Parent Information & Resources, 2017). The data in table 2 below shows the information collected by CEDARS:

Table 2: Variable Availability by School Year

	2010	2011	2012	2013	2014	2015	2016	2017	2018
School Year	x	x	x	x	x	x	x	x	x
District Code	x	x	x	x	x	x	x	x	x
Start Date	x	x	x	x	x	x	x	x	x
Exit Date	x	x	x	x	x	x	x	x	x
Exit Reason Code	x	x	x	x	x	x	x	x	x
Exit Reason	x	x	x	x	x	x	x	x	x
LRE Code	x	x	x	x	x	x	x	x	x
LRE	x	x	x	x	x	x	x	x	x
Initial Referral Date	x	x	x	x	x	x	x	x	
Initial Eligibility Date	x	x	x	x	x	x	x	x	
Initial WA Service Date					x				
Last IEP Review Date	x	x	x	x					
Last Evaluation Date	x	x	x	x					

**Source: Washington State P20W Longitudinal Data System Research Handbook*

The key component of the special education dataset is Least Restrictive Environment (LRE) where a student receives their education, program exit reason, start date, and exit date. The LRE data is important as it offers key data on the level of support and services provided to students (ERDC, 2020).

Minnesota

Minnesota's SLDS is called the Statewide Longitudinal Education Data System (SLEDS) and it connects student data from pre-kindergarten through completion of postsecondary education and into the workforce. SLEDS is governed by the Minnesota P-20 Education Partnership, which is managed jointly by the Minnesota Office of Higher Education, Minnesota Department of Education, and the Minnesota Department of Employment and Economic Development.

SLEDS also includes a robust K-12 dataset comprised of 159 individual tables of data. The SLEDS system collects information on a number of residents who in live in Minnesota, those born in Minnesota; persons receiving or funding related to health, basic needs, education, or work in Minnesota; persons incarcerated in Minnesota; person working or licensed to work in Minnesota; and organizations involved in health, basic needs, education, work or incarceration (SLEDS, 2022).

Tables 3 and 4 shows the diverse and robust data collected on schools, students, and staff. The teacher data could be key to understand the effectiveness of educators, although none of the published reports specifically analyze teacher effectiveness, which may be by design depending upon the political pressures of the teacher's unions in the state.

Table 5 illustrates the types of infographic reports that the SLEDS system can produce using the data. The example used in table 5 shows the assessment results for high school graduates. These infographics are powerful tools that SLDS systems produce for the users of the system.

Table 3: Overall School and Staff Demographics

Public School Districts (2022-2023)	
Public Operating Elementary & Secondary Independent Districts *(type 01)*	325
Non-Operating Common School Districts *(type 02)*	2
Special School Districts *(type 03)*	2
Intermediate School Districts *(type 06)* (Districts 287,916,917)	4
Integration Districts *(type 62)*	2
Charter Schools *(type 07)*	184
State Schools/Academies *(type 70)*	2
Education Districts *(type 61)*	12
Miscellaneous Cooperative Districts *(type 52,53)*	20
Special Education &/or Vocational Cooperative Districts *(type 52,53)*	17
Telecommunication Districts *(classification 75)*	0

Public Schools (2022-2023)	
Number of Schools	2,239
• Area Learning Centers-ALC's *(classification 41)*	276
• Distance Learning Programs-state approved *(classification 46)*	147
• K-12 Schools *(classification 40)*	5
• Elementary Schools *(classification 10)* Grades PK-6	1,004
• Middle Schools *(classification 20)* Grades 5-8	252
• Secondary Schools *(classification 31,32,33)* Grades 7-12	475
- Junior Highs *(classification 31)* Grades 7-9	14
- Senior Highs *(classification 32)* Grades 9-12 or 10-12	234
- Combined *(classification 33)* Grades 7-12	227

Public School Teachers (2021-2022)	
Teachers-Full Time Equivalent (FTE)	56,873
• Pre-Kindergarten & School Readiness	1,731
• Kindergarten	3,467
• Elementary *(grades 1 through 6)*	25,343
• Secondary *(grades 7 through 12)*	20,369
• Other/Un-Graded	2,192
• Special Education	10,664
Average Years of Teaching Experience-statewide	13
New Teachers FTE *(newly licensed & first teaching assignment)*	3,504

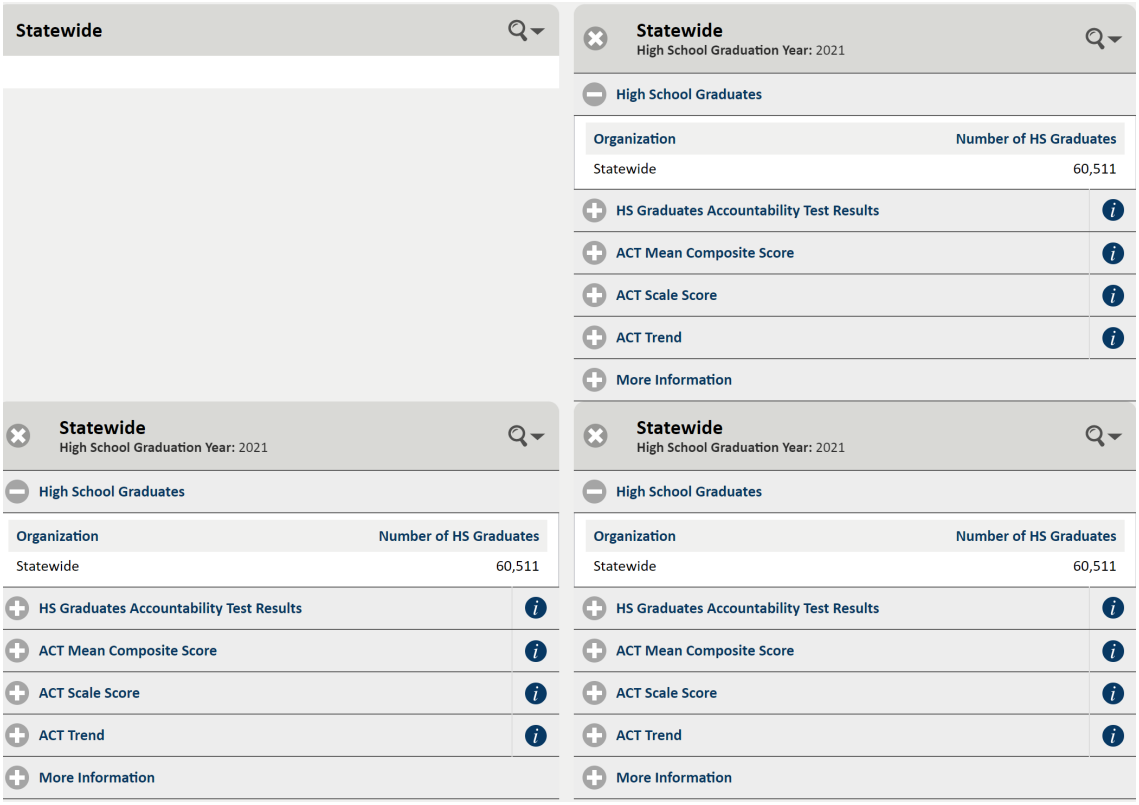
**Source: Minnesota Statewide Longitudinal Education Data System*

Table 4: K-12 Student Demographics

K-12 Enrollment	871,189
• Pre-Kindergarten & Early Childhood Enrollment	21,887
• Kindergarten	62,687
• Elementary *(grades 1 through 6)*	373,877
- Grade 1	60,471
- Grade 2	62,562
- Grade 3	62,255
- Grade 4	62,536
- Grade 5	62,311
- Grade 6	63,742
• Secondary *(grades 7 through 12)*	412,738
- Grade 7	65,508
- Grade 8	67,257
- Grade 9	69,625
- Grade 10	68,475
- Grade 11	67,567
- Grade 12	74,306
• Male *(grades PreK-12)*	448,018
• Female *(grades PreK-12)*	423,171
• Native American *(grades PreK-12)*	15,533
• Asian/Pacific Islander *(grades PreK-12)*	60,461
• Hispanic *(grades PreK-12)*	91,611
• Black *(grades PreK-12)*	101,388
• White *(grades PreK-12)*	549,237
• Multi *(grades PreK-12)*	52,069
• HawPacIsl *(grades PreK-12)*	890
• Special Education--receiving services *(grades PreK-12)*	147,254
• English Language Learners *(grades PreK-12)*	72,641
• Free & Reduced Lunch Eligible *(grades PreK-12)*	275,279
• Enrolled in Charter Schools *(grades PreK-12)*	66,595
- Elementary *(grades PreK-6)*	39,495
- Secondary *(grades PreK-12)*	26,476
• Open Enrolled to Non-Resident District *[SAC 1, 4] (grades PreK-12)*	87,636
- Elementary *(grades PreK-6)*	42,376
- Secondary *(grades 7-12)*	44,574
Enrollment in Alternatives:	12,554
• Alternative Learning Centers:	11,221
• Alternative Learning Programs:	893
• Private Alternative Programs:	440
Graduates (2020-2021):	60,516

**Source: Minnesota Statewide Longitudinal Education Data System*

Table 5: High School Academics



**Source: Minnesota Statewide Longitudinal Education Data System*

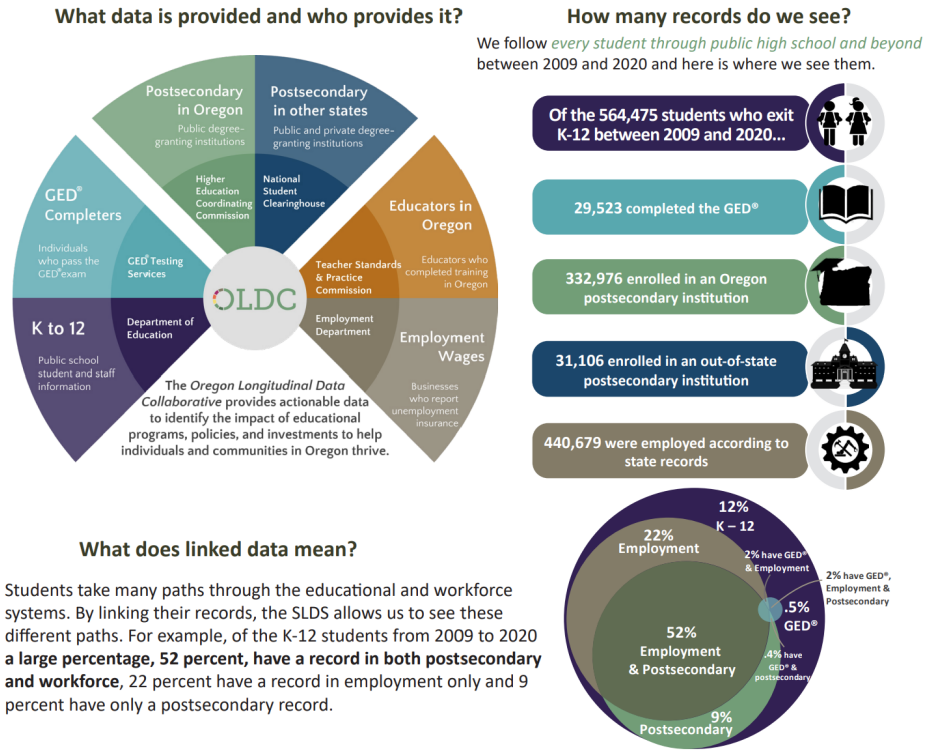
Oregon

The name of Oregon's SLDS is the Oregon Longitudinal Data Collaborative (OLDC). Enacted via legislation during the 2011 legislation session, the OLDC was reaffirmed with another bill during the 2015 session (ECS, 2022). The governmental agencies that provide the data to the system are also the agencies that govern it. Those agencies are the Oregon Department of Education, the Higher Education Coordinating Commission, the Oregon Employment Department, and the Teacher Standards and Practices Commission (ECS, 2022). It is estimated that there is nearly 3.8 million people within the database, which includes those who have attended public schools or colleges in Oregon over the past several years (Manning, 2019).

To protect the identity of students and staff data within the system, the data is encrypted and follows suppression guidelines, which conceal aspects of data queries that could identify students and potentially reveal their identities (Manning, 2019).

The OLDC includes a robust K-12 dataset with nearly 700 inputs. The dataset includes the demographic information of students in the state's K-12 system, including race/ethnicity, gender, date of birth, school year, district, and school. The dataset also includes information regarding attendance, test scores, special education status, gifted and talented education status, career and technical education participation, or free and reduced-priced lunch status (OLDC, 2022). Table 6 below provides an infographic of how the SLDS system works.

Table 6: Overview of the OLDC



**Source: Oregon Statewide Longitudinal Data System*

DQC Essential Elements and State Actions

The DQC's annual survey, entitled Data for Action, measures each state's progress towards implementing the 10 Essential Elements of Statewide Longitudinal Data Systems and the Ten State Actions to Ensure Effective Data Use. These QCR's developed elements and policy actions assist states in establishing and producing quality data systems that increase student achievement (Data Quality Campaign, 2022). The 10 Essential Elements provide a roadmap for states as they build their systems to collect, store, and use longitudinal data to improve student achievement. The DQC's 10 essential elements of a SLDS are:

1. **A unique student identifier.** A single, unduplicated number assigned to an individual student that remains with that student from kindergarten through high school that connects student data across key databases across years.
2. **Student-level enrollment, demographic, and program participation information.** This includes information such as attendance, special education status, gifted and talented education status, career and technical education participation, or free and reduced-priced lunch status.
3. **The ability to match individual students' test records from year to year.** This allows states to measure academic growth and the ability to disaggregate the results by individual test item and objective.
4. **Information on untested students.** This should include the reasons why they were not tested.
5. **A teacher identifier system.** This should come with the ability to match teachers to students by classroom and subject.
6. **Student-level transcript data.** This includes information on courses completed and grades earned from middle and high school.
7. **Student-level college readiness test scores.** This includes scores on the SAT, ACT, Advanced Placement (AP), and International Baccalaureate (IB) exams.
8. **Student-level graduation and dropout data.**
9. **The ability to match student records between the P–12 and postsecondary systems.**
10. **A state data audit system assessing data quality, validity, and reliability.**

In addition to the 10 essential elements, the DQC identified 10 state actions for effective data use. These actions call for states to move from collecting data only for compliance and

accountability purposes to using data to answer critical policy questions, inform continuous improvement, and support students on their paths to success. The DQC's 10 state actions are:

1. **Link state K–12 data systems with early learning, postsecondary, workforce, and other critical state agency data systems.**
2. **Create stable, sustained support for longitudinal data systems.**
3. **Develop governance structures to guide data collection and use.**
4. **Build state data repositories.**
5. **Provide timely, role-based access to data.**
6. **Create progress reports with student-level data for educators, students, and parents.**
7. **Create reports with longitudinal statistics to guide system-level change.**
8. **Develop a purposeful research agenda.**
9. **Implement policies and promote practices to build educators' capacity to use data.**
10. **Promote strategies to raise awareness of available data.**

In its latest survey, the DQC found that Washington, Oregon, and Minnesota all met the 10 essential elements of a SLDS, as did most of the states in the country. For the 10 state actions, the three states each met 7 of the 10 actions identified by DQC. All three states fell short of achieving State Action 5, providing timely, role-based access to data. Both Oregon and Minnesota fell short of State Action 1, linking state K-12 data systems with the other statewide data systems. Both Washington and Minnesota fell short of achieving State Action 9, implementing policies to promote practices to build educators' capacity to use data. Washington also fell short of State Action 6, creating reports with student-level data for educators, students, and parents. The third action that Oregon fell short on was State Action 2, creating stable, sustainable support for longitudinal data systems. According to DQC, the only states that had implemented all 10 actions were Arkansas, Delaware, and Kentucky (Data Quality Campaign, 2022).

Analysis

When comparing the three data systems, Washington seems much further along than the other two states and that's likely because their system was established 15 years ago while Oregon and Minnesota are newer. Additionally, Oregon and Minnesota both deploy governance systems whereby the state agencies that supply the data also govern the SLDS. Washington, on the other hand, created a new state department to maintain and govern its data system, which is located within the state's Office of Financial Management.

All three states provide robust K-12 datasets that include key demographics of students such as such as attendance, special education status, assessment scores, career and technical education participation, and free and reduced-priced lunch status. While I was able to attain the data files for all three states, Washington does a much better job at explaining how their data is inserted into the system and how it is actionable. They do this by providing a detailed data system research handbook, which is very user friendly and clear. The handbook provides a body of knowledge that directs researchers to helpful and appropriate resources for the state's SLDS.

All three states have done a good job implementing the 10 essential elements of a SLDS, as showcased in the DQC's analysis. However, all three had trouble fulfilling all 10 state actions for effective data use, each falling short in three of the actions. It would be remiss of me not to highlight that all three states have been unable to implement State Action 5, providing timely role-based access to data. This means that the state policy does not ensure that teachers and parents have access to their students' longitudinal data. While providing parents and teachers access to this data is essential, there are roadblocks in doing so considering all three states were unable to attain this goal. This issue should be something that California keeps in mind as it builds out its SLDS.

Oregon and Minnesota also failed to implement State Action 1, linking state K-12 data systems with the other statewide data systems. This could very well be tied to the fact that the state agencies that provide data to the SLDS are also the agencies that govern the system. My theory on why Washington was able to achieve State Action 1, and not the other states, is because they created a new state department to govern their system. This means that the mission of that department is solely dedicated to governing the SLDS and managing the data that goes into the system while the agencies that govern Oregon and Minnesota's SLDS have other primary missions to carry out in addition to governing this robust data system.

Both Washington and Minnesota fell short of achieving State Action 9, implementing policies to promote practices to build educators' capacity to use data. Essentially this means that data literacy is not a requirement for certification/licensure and data literacy is not a requirement for state program approval. This is another important issue that California needs to consider as it builds out its SLDS. To successfully implement this state action, California must find a way to build data literacy into the state licensure polices that provide teacher preparation programs with direction about the skills teachers need to be qualified educators.

In the next section I will provide my recommendations on what California should consider as it looks to build out its SLDS and then provide some concluding thoughts

POLICY RECOMMENDATIONS

As California looks to take the next step in implementing its C2C Data System, I want to offer some policy recommendations based on my analysis of the Washington, Oregon, and Minnesota systems while considering the 10 essential elements and 10 state actions outlined by the DQC.

Recommendation #1: Use the DQC's Essential Elements and State Actions as Guide/North Star

With California building their system over the next several years it will be critical for the state to have a guiding document or "north star" to keep the SLDS focused, on-time, and on-mission. My recommendation is that California build out the system using the DQC's 10 essential elements and 10 state actions as their guiding principles. Additionally, the state should establish a flexible timeline to achieve these elements and actions over the course of several years. DQC offers several resources on its website that would assist with implementing these elements and actions and thus I recommend utilizing these vital resources to ensure that the essential elements and state actions are all met in a timely manner.

I believe this is a useful and non-controversial recommendation because all the other states that have built out their SLDS have worked with the DQC and provided information for their survey. The DQC is a respected non-profit in providing information and resources to states looking to build out a successful SLDS and from my research are the only organization that does SLDS analysis on this type of level. In my research, it is unclear how teacher unions have reacted to the recommendations of the DQC, which is perhaps something that can be fleshed out in a future policy paper on longitudinal data systems.

Recommendation #2: Establish a New State Department to Govern and Manage Data System

California should consider establishing an entity like Washington's ERDC to manage and govern the C2C Data System under the California Department of Technology. Having an office solely dedicated to the C2C Data System work will ensure that the SLDS remains a high priority and that implementation stays on track. Other states that have put existing entities in charge of their SLDS saw delays in their implementation as those agencies have existing priorities on top

of maintaining the SLDS. I also think this will be vital for ensuring SLDS sustainability. In other states, even after a SLDS is created, it remains in danger if funding dries up or new state leaders fail to take interest in sustaining the system. I strongly believe that establishing a data center like Washington's ERDC whose mission is to collect the data from the state agencies that comprise the C2C Data System, can alleviate this sustainability concern.

There could be some potential issues with this recommendation, particularly if the existing state agencies that provide the data to the C2C Data System are concerned about a new state agency having access to their datasets. This concern may be remedied through a robust data sharing agreement amongst the agencies and the new entity charged with governing the system. The data agreement can set specify parameters and guidelines on how the data should be collected and used within the system.

Another potential issue is the negativity surrounding the expansion of bureaucracy. Adding another state agency to head up the C2C Data System will cost the state additional dollars and create an additional layer of bureaucracy. While there may not be a direct remedy to this potential issue, my analysis finds that establishing a separate entity tasked with governing and managing the system makes for a far more productive and efficient SLDS.

Recommendation #3: Leverage Existing Data Systems and Include Robust Datasets

When analyzing the three states it was clear that Washington provides the most robust datasets for its SLDS. I believe that California would benefit from emulating the types of datasets that Washington utilizes as it provides vital information on key demographics that struggle compared to their peers, including Black and brown students, low-income students, English learners, and students with disabilities. In many ways California already collects much

of this data through the CALPADS system, so it should be seamless to extract those datasets for the C2C Data System. For this reason, I recommend leveraging the data already in the CALPADS system and utilizing that data

I also think it is vital that parents, students, and educators can easily access the C2C Data System's data and any reports produced from them. I found it very difficult to access several other states' SLDS reports and while that was frustrating for me as a graduate student working on a paper, I can't imagine how education stakeholders, parents, and advocacy groups feel about the data being difficult to access.

The potential pushback from this recommendation is ensuring the data released from the system is secure. For the public to have access to these robust datasets, requires the state to ensure that student and teacher data is kept confidential and secure. I believe the best way to keep the data secure and protect the confidentiality of students and teachers is by encrypting the data like other states have done.

Recommendation 4: Establish a Partnership with Oregon and Washington

As I stated in my analysis, in 2020 California formed a Western States Pact with Washington and Oregon on a shared vision for reopening their economies and controlling COVID-19 into the future. I believe this existing relationship can be leveraged and lead to another compact among the states for data collection and reporting. As California embarks on this arduous journey building out the C2C Data System, it would be wise to leverage the preexisting relationship with Washington and Oregon, two states that already have established SLDS. By utilizing their best practices and learning from their mistakes, California can ensure a smoother transition to their SLDS. Additionally, this partnership could lead to important data

reporting across multiple states, which could help guide education policy on an even more macro level.

The potential issue with this recommendation is the worry about sharing California data with other states. Therefore, it is important for the state to implement strong data security and student and teacher confidentiality, which I describe in recommendation #3.

CONCLUSION AND OUTSTANDING QUESTIONS

California is on the precipice of launching a SLDS within the next five years (Jackson, 2021). However, it seems that the state may be poised to make the same mistakes that other states have made in implementing their SLDS. Solutions for ensuring a smooth implementation and an effective SLDS will require strong partnerships with the agencies that are supplying the data and strong leadership from those who will manage the system. It is important for California to consider the successes and failures of those states that implemented their SLDS before them.

While I made a variety of connections between the literature review and my primary analysis that resulted in my four policy recommendations there is still much to learn about longitudinal data systems especially with the multi-year approach that California is just embarking on. I believe the following issues need further research:

- How do politics and state legislatures influence the implementation and progression of a SLDS?
- Do teacher's unions have strong reservations about the data being included in a SLDS and how have they pushed back?
- What are the most effective datasets that identify where achievement gaps begin and persist?

While I was hoping to find more information on these questions for my policy paper, I did not find enough to provide a meaningful narrative in this policy report. In fact, if California is telling of other states, then perhaps politics do not have much of an effect on SLDS, at least at the beginning of implementation. This is because the bill that established the C2C Data System, AB 132, was approved in a bipartisan manner by the Legislature with a 63-9 vote (7 abstentions) in the Assembly and a 32-4 vote (4 abstentions) in the Senate. I also could not find any public records of Republicans opposing a SLDS for California, nor for the other three states I analyzed. While teacher's unions play a powerful role in California and many other democratic states, the only documentation I could find about CTA commenting on the use of a SLDS is in a policy position document. The document states that CTA believes the data from a SLDS should be limited and relevant to informing effective instructional strategies and improving student outcomes. They state that multiple measures of student achievement should be used in any mandated state of federal assessment system when showing the progress of students (California Teachers Association, 2022). While this information signals they may have reservations about certain data used in the SLDS, this hypothesis warrants further explanation.

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