Feasibility Study: Digital Access

At the October 1, 2024 meeting, the Data and Tools Advisory Board advanced a proposal from Jason Borgen to include information on digital access in the Cradle to Career Data System (C2C) analytical data set. Specifically, the California Department of Education (CDE), California Community Colleges (CCC), California State University (CSU), and University of California (UC) were requested to provide information on:

- download and upload speeds at each local educational agency (LEA) or postsecondary institution
- whether each LEA or postsecondary institution received federal funds to support broadband access
- the proportion of students benefiting from federal broadband aid at each LEA or postsecondary institution
- the proportion of students receiving digital devices for in-class and at-home use at each LEA or postsecondary institution
- the devices students have access to for in-class and at-home use that were provided by the LEA or postsecondary institution, at each LEA or postsecondary institution
- the type of digital devices that students have at home
- the type of internet access available at each K-12 student's home address
- the average internet connection speeds available at each K-12 student's home address
- the number of staff supporting digital literacy and technology at each LEA or postsecondary institution

The full text of the proposal can be found at this link.

When conducting feasibility studies, the Office of Cradle-to-Career Data (Office) considers four factors: data availability, data reliability and data validity, cost, and compliance. Information on each aspect is included below.

Data Availability

Data Sources and Historical Range: *Where the data originates from and the span of years for which data are available*.

Currently, none of the agencies that have signed the participation agreement for the C2C analytical data system collect the proposed data points. While the Office has identified other entities that collect related information, none of the institutions identified below collect this information in a manner that can be connected to the individual-level data within the P20W analytical data set.

Education Institution Broadband and Digital Device Access

CENIC's California Research and Education Network (CalREN) provides broadband infrastructure for public educational institutions and has information that could be used to identify download and upload speeds for LEAs and postsecondary institutions.

For LEAs, information on upload and download speeds can be downloaded from the DataLink website. However, this information is self-reported on a voluntary basis. Information may be outdated or missing.

CENIC maintains information on broadband speeds for all community colleges, CSUs, and UCs, which could be provided for the analytical data set, but does not have information on independent colleges.

Federal Funds

The Federal Communications Commission (FCC) eRate program helps pay for first-time and recurring broadband costs for K-12 schools and libraries. Institutions that take advantage of this funding are connected to the CalREN system. Information on grant recipients is available on a public portal. However,

because funding may be provided for consortia, information is available at the level of the county offices of education, not the LEA level.

There are a variety of federal programs that could conceivably be used to support broadband access, but would require analysis to identify whether funds went to specific LEAs or postsecondary institutions. For example, the federal pandemic-era Broadband Equity, Access, and Deployment (BEAD) program provided one-time funds for multiple types of technology-related investments. Initial funding went to residences and business. If funds remain, they could be spent on educational institutions, but it is unlikely that there will be sufficient remaining resources. Information on these grants is tracked by the California Public Utilities Commission and could potentially be provided for the analytical data set.

The U.S. Department of Agriculture also provides funding to support broadband in rural regions, which could potentially be provided to educational institutions.

Finally, the FCC Emergency Connectivity Fund, which provided resources from 2021 - 2024, supported education institutions to purchase hotspots, devices, and laptops.

Home Digital Devices

The Household Pulse Survey is an online survey conducted by the U.S. Census that measures how emergent social and economic issues are impacting households across the country.[1] Information is available at the federal and state levels, as well as the nation's 15 largest metropolitan statistical areas. The survey includes questions on internet and digital device access, but the topics covered by the survey change in response to current events, so the specific information gathered may not be consistent from year to year. However, information is not

[1] Recent studies on digital access in California, such as by the California Budget & Policy Center and the Public Policy Institute of California, leveraged the Household Pulse Survey to document reliable access to the internet and digital devices.

available at the LEA or individual level in a way that could be combined with existing records in the P20W analytical data set.

The California Department of Technology partnered with the nonprofit California Emerging Technology Fund to produce a Statewide Digital Equity Survey in both 2021 and 2023. Information on access to broadband and digital devices was gathered using phone and online surveys from between 1,650 and 3,200 households. As is the case with the Census study, information is not available at the LEA or individual level in a way that could be combined with records in the P20W analytical data set.

K-12 Student Internet Access Type and Speeds

The California Interactive Broadband Map provides information at the level of individual addresses on whether fixed broadband is available as well as upload and download speeds for specific mobile plans. However, information on fixed broadband speeds is available for only half of the state and access to upload and download speeds may not be the same for every plan that a family could potentially purchase. This map also does not include information on whether households have a digital plan or which plans they use.

Staff Supporting Digital Literacy

Information on the number of staff who support digital literacy and technology cannot be discerned from currently available data. Job classifications do not identify these specific roles. For example, in K-12, the only categories that are documented are: administrator, pupil services, and teacher.

Future Relevance and Data Availability: *Evaluate whether the new data will remain useful as the analytical dataset evolves and if the information is likely to be collected in the future.*

California supports the Broadband for All Action Plan, which includes several initiatives focused on closing the digital divide through support for the State Digital Equity Plan, middle and last-mile network and infrastructure funding, and the former Affordable Connectivity Program. As the need for digital access and

literacy continues to grow, the proposed data points align with the direction of these initiatives.

However, other than information from CalREN on institutional broadband access, it is not clear that other proposed data points will be available.

Data Reliability and Data Validity

Institutional Variability: *Whether there are variations in administrative practices and data recording across institutions at the local level.*

Some communities have created local surveys to better understand the digital divide.[2] Because these surveys have been developed locally, they would not provide consistent information for the C2C analytical data set.

CENIC staff noted it has been challenging for LEAs to track the location of the digital devices they have purchased, which would mean that data collection on which students have access to specific devices would likely be of low quality.

Asking families to report on their upload and download speeds and on the digital devices they own would likely produce low-quality data. For example, parents and guardians would need to be instructed on how to evaluate upload and download speeds.

Agency Variability: *Data and metric definitions across various agencies follow a uniform format and standard.*

CCC noted that it might be possible to extrapolate information on institutional provision of digital devices using the new Vision Aligned Reporting (VAR) metrics. However, data collection began in fall 2024 and will not be due until fall 2025. The quality of the VAR data will need to be evaluated before determining whether they provide reliable information on the proposed data points that could be integrated into the C2C analytical data set.

Similar data are not available from CDE, CSU, or UC.

[2] See for example, a study commissioned in Long Beach.

Data Integration Across Agencies: *The Office's ability to consolidate data from multiple agencies.*

Because information is not gathered by state agencies, one possibility would be to integrate survey information in the C2C analytical data set. However, survey data are partial – the responses of some Californians are extrapolated to represent other people with similar characteristics. Unless surveys are sent to tens of thousands of Californians, the information on digital devices used at home, broadband access, and upload and download speeds would be based on very small samples of students.

For example, the Household Pulse Survey cannot be used to show differences between all parts of the state. While information is available at the state level, regional data is only available for Los Angeles, Riverside, and the Bay Area. Even where there is regional information available, because the identity of the people who responded to the survey is not shared by the U.S. Census, it would be impossible to map those results to specific children or the education institutions that respondents attended. Similarly, because the Statewide Digital Equity Survey went to such a small sample of Californians and their identities would not be provided to C2C, results could not be shown at the individual or institutional level.

Broadband and Digital Device Access
Although it is possible to map CalREN data to different parts of the state, there are significant challenges in using address information to track broadband and digital device access at the student level and thus assess the impact of the digital divide on factors like retention or graduation.

Students' address information is often unreliable, particularly for students facing food and housing insecurity, who may not have stable addresses. In addition, K-12 children may live with more than one family member. CCC, CSU, and UC highlighted that address information is collected at the point when students apply to college and may not reflect where a student subsequently moves.

In addition, address information associated with an institution may not be an effective proxy for broadband and digital device access. This is particularly an issue for community colleges. Many students take classes online and may not

benefit from higher broadband speeds or digital devices that are available on campus. Furthermore, students can take courses at community colleges in other parts of the state through California Virtual Campus, further diluting institutional address as a way to evaluate individual students' broadband access.

Finally, access to digital devices is just one of many factors that might shape outcomes, particularly given that lack of access may be an indicator of economic insecurity. Other factors, like inadequate food or housing, might also inform differences in outcomes like graduation rates. In the context of dashboards or query builders, it is not possible to convey this level of nuance.

Federal Funds

Information on whether LEA or postsecondary institutions received federal funds for technology could be identified by having an Office staff person review government websites to document which institutions won specific awards. This would have to be compiled manually by first identifying each federal funding opportunity and then comparing awardees to lists of California's LEAs and postsecondary institutions. However, it may not be possible to readily identify what proportion of students benefited from those awards.

Staff Supporting Digital Literacy

Many LEAs and postsecondary institutions prioritize digital literacy and have embedded these skills across the curriculum. It would theoretically be possible for an Office staff person to review the learning outcomes for each of the thousands of courses taught at each LEA and postsecondary institution in the state to determine which classes teach digital literacy and technology skills, but this effort requires knowledge of the related curriculum and would need to be repeated each year. In addition, information is not readily available on how many different faculty teach each course. This approach would also miss other staff who teach digital literacy. For example, at many community colleges, librarians teach courses on research skills that include a digital literacy component, which would not necessarily be flagged in learning outcomes for a course.

Cost

Startup Costs: *Costs to begin collection including both direct costs and associated staff time for the Office and its data providers.*

There would be a significant cost and burden to begin collecting these data points. If LEAs and postsecondary institutions were asked to report this information, they would have to devote time and resources to documenting receipt of federal funds and what proportion of students benefit from those resources, staffing allocated to digital literacy and technology, how many students have access to specific digital devices, the types of broadband access students have at home, and what devices they own. They would also need to amend their local data systems to allow them to track this information. Finally, they would need to devote time to uploading the information to the state level data systems maintained by CDE, CCC, CSU, or UC.

Startup processes for the data providers would also be significant. They would need to amend the data structure of their information systems, develop guidance documents regarding how to report this information, host training for LEAs and postsecondary institutions regarding new requirements, and validate the new information. Generally, focused attention is required for three years to develop, explain, collect, and ensure the quality of new data points.

The primary purpose of the P20W data system is to connect pre-existing administrative data. The Office does not currently have the staff or funding necessary to conduct surveys as a data point contribution to the P20W data system. To document the upload and download speeds and available devices at each K-12 student's home, the Office would need substantial support. If the Office is asked to manually compile information, such as which educational institutions received specific grants, this would reduce the amount of time available to do other tasks related to the data system.

Ongoing Costs: *Costs necessary to maintain collection of the stated data elements for the Office and data providers*.

LEAs and postsecondary institutions would need to devote time each year to tracking the data points on funding, staffing, and distribution of technology tools.

LEAs and postsecondary institutions would need to devote time each year to tracking the data points on funding, staffing, and distribution of technology tools

as provided through statute. Ongoing costs for staff and collection processes and systems for local and state agencies are expected to be less than initial start-up costs but would still be significant once the data collection systems and processes are established and the quality and amount of data is determined to be useful. The cost of establishing these processes may be difficult to quantify and could be substantial both for state agencies, schools, and LEAs.

Annual costs for the Office to compile information could shift unpredictably. For example, several of the federal programs named in the proposal were one-time funds associated with the COVID 19 pandemic. In addition, funding for digital access and infrastructure may come from various sources and grants, so time would need to be spent each year identifying those programs. For example, the National Telecommunications and Information Administration, Federal Communications Commission, the U.S. Department of Agriculture, and the California Public Utilities Commission administer digital access programs.

Compliance

Legal Requirements: *Compliance with privacy laws, intellectual property rights, and any other relevant regulations.*

To change data provider reporting requirements, legislation may be needed to create the authority to collect the requested information.

Scope: *Whether the proposal is consistent with the scope of work that is described in the Cradle-to-Career Act.*

Discussions held during the planning process addressed the need to provide contextual information to support more nuanced understanding of equity gaps among populations. For example, the initial list of data points for the analytical data set include institutional characteristics such as school suspension rates, proportion of high school graduates attaining the College/Career Readiness indicator, or whether the institution participates in a College Promise program. However, specific data points that should be included in the analytical data set are not spelled out in the Cradle-to-Career Act.

Neutrality of the Office: *Whether the proposal might jeopardize the Office's neutral stance.*

The C2C analytical data set does not currently capture information on funding. Including information on supplemental federal funds for digital resources could lead to more requests for including information on grants, which could be used to make arguments about how state resources are allocated or to use the C2C data set to audit state investments.

Suppression and Regulatory Feasibility: *The impact of compliance policies on access to data based on the Office's data suppression policy and other regulatory concerns such as reidentification risks.*

The proposed data points focus primarily on institutional characteristics, rather than individual students, so suppression will not be applied to those data points.

Stewardship and Participation Agreement: *Concerns regarding the participation agreement and stewardship on the proposed data element and its applications.*

The primary concern expressed by data providers is that the information requested is not currently available and would be difficult to document. They noted that using the data request process to force legislative changes to agency reporting and accountability requirements would not be consistent with the governance structure of C2C.

Furthermore, data providers were concerned about the implications of combining survey data with administrative data. While discrepancies between administrative and survey data are often addressed in research studies, attempting to combine these two different types of information in tools like dashboards and query builders may lead those with less training in research methods to draw faulty conclusions. For example, surveys of former students conducted by data providers may have response rates of 30 percent or lower. When researchers examine these results, they evaluate whether the people who responded are representative of the entire student body. Someone who does not have training in survey methods may not realize that broadband access

information could be overstated if people with fewer resources participate in the survey at lower rates.