A Report to the California Cradle-to-Career Data System: eTranscript California Stakeholder Feedback and Discovery

July 2023

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eTranscript California Overview

eTranscript California (eTranscript CA) is a secure electronic transcript system supporting the California Community Colleges (CCC), California State University (CSU), the University of California (UC) system, and select private (AICCU) and out-of-state postsecondary institutions. While there are a variety of electronic transcript vendors used across the four postsecondary segments, eTranscript CA is the only solution designed specifically to address those areas unique to California student transcripts, such as the Intersegmental General Education Transfer Curriculum (IGETC), CSU general education requirements (GE Breadth), Associate Degrees for Transfer (ADT), certification notifications, and support for district transcripts. The peer-to-peer exchange network delivers data in the California Electronic Transcript Standard, a statewide format recognized by the CSU and UC systems. The exchange supports the work of the Student Success Act of 2012 (SB1456) and the "Second Chance" initiative (AB1056). eTranscript CA is funded by the California Community Colleges Chancellor's Office (CCCCO) and managed by the California Community Colleges Technology Center (CCC Tech Center). There are currently 102 California Community Colleges, 20 CSU colleges, 6 UC colleges, 3 AICCU colleges, and 3 out-of-state institutions participating in the eTranscript CA exchange.

History of the Electronic Transcript Project

The legislation that established the scope of planning for the California Cradle-to-Career Data System (C2C) specified that recommendations should address how to "transfer high school pupil educational records to postsecondary educational institutions." After studying several different options, members of the planning committee recommended expanding this scope. They outlined how eTranscript CA—an existing service offered through CCC—could be used to streamline college and transfer application processes, expand the types of records that can be shared to include third-party certifications and badges, and identify individuals who are eligible for social benefits. The planning committee also provided draft costs for scaling eTranscript CA, including upgrading the platform for eTranscript CA, providing college-level support for integrating eTranscript CA for CCCs, CSU, UC, and independent colleges, and linking to an eligibility service that was under development by the California Department of Social Services.

In response to the recommendation, the legislation that created C2C directed the managing entity to enter into a memorandum of understanding with eTranscript CA to provide electronic transcripts and verify eligibility for social services. As a first step in this process, C2C engaged WestEd (the entity that served as the process facilitator during the data system planning process) to document the current status of eTranscript CA, how it is perceived by postsecondary institutions and students, and to identify issues that must be addressed to scale eTranscript CA.

Electronic Transcript Information Gathering Interviews

Interviews with representatives from California's four postsecondary segments provided a sampling of how institutions are currently handling incoming and outgoing transcripts. Many colleges expressed that due to changes from the COVID-19 pandemic and resulting campus closures, the transition to and adoption of electronic formats for transcripts greatly increased, which has improved their tracking process overall and the timeliness of sending and receiving transcripts. However, they feel there will always be a use case for managing paper transcripts for older records or international transcripts. Colleges across all four segments have implemented a variety of platforms, vendors, and processes for facilitating electronic transcript exchange, mirroring a decentralized approach to technology adoption in general. A summary of each segment is included in the table below. Interview questions are included in Appendix A.

Segment	Interviewees
California Community Colleges (CCC)	• 1 Programmatic & 1 A&R/Enrollment Representative - North Orange Continuing Education • 1 Programmatic Representative - Mt. San Antonio College School of Continuing Education • 2 A&R/Enrollment Representatives - Santa Rosa Junior College • 1 A&R/Enrollment Representative - El Camino Community College • 1 A&R/Enrollment Representative - Santa Monica College • 2 A&R/Enrollment Representatives - Chabot College • 2 IT Representatives - Riverside Community College District • 1 A&R/Enrollment Representative - Los Rios Community College District • 1 A&R/Enrollment Representative - Bakersfield College • 1 Faculty Representative – Palomar College • 3 Faculty Representatives – Norco College • 2 Faculty Representatives – Shasta College • 1 Student – Riverside City College
Segment	**Activity**
California State University (CSU)	• 3 segment leads – California State University Office of the Chancellor • 1 IT Representative – California State University Office of the Chancellor • 1 A&R/Enrollment Representative – Cal Poly Pomona • 1 A&R/Enrollment Representative – CSU Long Beach • 1 IT Representative – CSU Channel Islands • 1 Student – Cal Poly Pomona

University of California (UC)	• 1 segment representative – University of California Office of the President • 4 A&R/Enrollment Representatives – UC Berkeley • 1 A&R/Enrollment Representative – UC San Diego • 2 A&R/Enrollment Representatives – UC Irvine
Association of Independent California Colleges and Universities (AICCU)	• 1 segment representative – AICCU • 1 A&R/Enrollment Representative– California Baptist University • 2 A&R/Enrollment Representatives – University of La Verne

CCC

California community colleges use a variety of vendors and solutions for processing incoming and outgoing transcripts. 62 colleges send transcripts through eTranscript CA, with about 20 additional colleges anticipated later this year. 102 colleges currently receive transcripts from other community colleges through eTranscript CA. Colleges are also receiving transcripts via Parchment, National Student Clearinghouse, and on paper. The most common vendor for handling outgoing transcripts is Parchment, having acquired the previously prevalent tool, Credential Solutions, in 2020. One college interviewed uses National Student Clearinghouse to process outgoing transcripts, one uses Certree, and one college's Continuing Education program noted that all outgoing transcripts were still handled on paper.

CSU

Of the four segments, CSU has the most system-wide approach to technology adoption, with each campus using the same Student Information System (SIS) platform, PeopleSoft, facilitating more consistent integration with other software solutions and consistent processes for their use. Still, each campus reported differences in how they handle incoming and outgoing transcripts. Most campuses receive via eTranscript CA from participating community colleges and report this was the source for the majority of their in-state transfer applicant transcripts. For institutions that don't send transcripts via eTranscript CA, including non-participating California community colleges, other California 4-year institutions, and out-of-state and international institutions, they receive transcripts from a variety of vendor solutions, including Parchment and the SPEEDE Server, as well as mail/paper. Of those campuses interviewed, outgoing transcripts are handled by Parchment or National Student Clearinghouse.

UC

The UC system does not have common technology requirements across its campuses and each college maintains an annual list of transcript vendors and solutions that they accept incoming transcripts from. Six of the nine colleges receive incoming transcripts via eTranscript CA from participating community colleges. Common among other supported solutions across the UC system include Parchment, National Student Clearinghouse, and the SPEEDE Server. All colleges interviewed send outgoing transcripts through Parchment.

AICCU

AICCU colleges operate independently, with three institutions currently receiving transcripts through eTranscript CA (via the SPEEDE Server) and with a variety of additional vendors used for sending and receiving transcripts. Of the two colleges interviewed, one sends outgoing transcripts through Parchment and the other through National Student Clearinghouse.

Across Segments

Common benefits reported across solutions

- For those institutions receiving transcripts in XML or EDI format, interviewees reported a much more efficient and trusted process of pulling in data to the SIS and expediting admissions decisions.
- For those institutions outsourcing fulfillment processes, using a third-party vendor was reported as efficient in that students initiate the request, and the vendor fulfills either electronically or through paper delivery. The vendor also processes all payments from the student and when applicable, to the college.
- Across all segments, colleges appreciate that technology tools, once implemented, handle the bulk of transcript ordering and fulfillment tasks.

Common challenges reported across solutions

- Juggling multiple sources, and vendor solutions, across a variety of platforms and methods of retrieval is time and labor intensive.
- There is inconsistency in how the data is formatted.
- Where/how certain information is flagged differs as well, again increasing staff review time.
- Due to a lack of notification if there are errors in requests, students are often frustrated at the campus staff when the issue really arises from the vendor platforms.
- While electronic delivery expedites the previous mail-dependent process, it does not eliminate most steps needed to convert that transcript into usable articulation data. Transcripts delivered electronically as images or PDFs, rather than EDI or XML, require a variety of supplemental tasks to process, just like paper: these must be run through Optical Character Recognition (OCR) software, cleaned up, and data manually evaluated since OCR detection is not foolproof.

- An ongoing challenge for colleges is the investment in a platform that gets acquired by another company that then has different solutions offered and/or diminished customer support.
- While not specific to transcript technology, a common challenge reported by colleges is that students don't always include transcripts for all institutions attended; rather, only the latest attended.
- Students enrolled in college courses during high school don't always understand that their high school transcript does not include their college course activity, and a college-issued transcript is required for reporting that credit.

Benefits reported for eTranscript CA

There are three options for participation possible in the eTranscript CA exchange. The CCC Tech Center maintains a list online of current institutions and how they participate in one or more of these options:

- *Accepting Electronic Requests:* through this method, receiving institutions may bulk request transcripts from any member college accepting requests and the transcript is delivered without a request or payment by the student. When a student applies for admission to a CSU or UC campus and indicates that they attended one or more California community colleges as part of their education history, the receiving CSU or UC college may batch request the transcripts on behalf of all applicants with the same college(s) attended. This process can be open to all requesters or customized by a community college to only accept requests from one segment, such as other CCCs, or only from institutions that the college has a partnership with. With this method, students are not responsible for ordering their transcript and are not charged a fee. (22 CCCs participating)
- *Sending Electronic Transcripts:* this level of participation indicates that the college will fulfill requests through eTranscript CA but not necessarily through the direct, peer-to-peer exchange of the *Accepting Electronic Requests* process. These colleges often have a third-party vendor processing the requests through an integration with eTranscript CA. Vendors are typically paid for this integration because it is a costly and time-consuming process for the college, but it allows the college to require students to initiate the transcript request through their vendor's platform and pay for transcripts through that third-party service. (59 CCCs participating)
- *Accepting Electronic Transcripts:* this level requires the least amount of effort and was generally designed for CSU, UC, and AICCU participants, although community colleges also participate in this capacity. (102 CCCs, 20 CSUs, 6 UCs, 6 AICCUs/out-of-state participating)

Benefits to CSU, UC, AICCU, and Other Receiving Colleges

- UC, CSU, and AICCU institutions are engaged in eTranscript CA in a consistent way, as *Accepting Electronic Transcripts* institutions. They receive transcript data from community colleges.

- eTranscript CA delivers standards-based transcript data (PESC XML or EDI TS130).
    - TS130 format feeds directly into each CSU campus's SIS (PeopleSoft)
    - Actual data vs. static images can result in quicker articulation decisions
- Participating colleges have implemented Application Programming Interfaces (APIs) to automate most of the process.
- Where community college participation is in place, the receiving institutions can bulk request transcripts for efficient delivery. Campuses reported that they typically request/receive in batches of 500.
- Receivers can request/fulfill transcripts from all previous institutions attended if they are participants, particularly through districtwide transcripts, such as those provided by the Los Angeles Community College District and Los Rios Community College District.
- There is a reduction of burden in processing image, PDF, or paper-based transcripts. CSU representatives interviewed report that the EDI files received from eTranscript CA are preferred over all other methods they are managing.
- Institutions receiving transcript data for incoming transfer students consistently reported the most benefit of the existing system and report that it works very well for their needs.

Benefits to California Community Colleges

Although they are also receivers of transcript data through the platform, community colleges see themselves primarily as senders and reported fewer benefits of participation. However, several exist, including:

- There is no fee for participation.
- Colleges receive support from the CCC Tech Center for integration, which can mean a reduced burden on campus IT or the cost to pay a vendor for similar services.
- Ability to streamline bulk requests from receiving institutions quickly and efficiently.
- The platform ensures the data is sent in the format that the receiving institution needs it in.
- The platform provides the ability to quickly receive data from other community colleges that is delivered in a format their systems can easily ingest.
- Data-based transcripts minimize errors and expedite admission evaluations internally and externally.
- The platform is designed to handle GE and IGETC.
- Reports for where the transcripts are being delivered to offers transparency to colleges about where their students are applying and being accepted.

Challenges reported for eTranscript CA

Colleges both participating and not participating in eTranscript CA, as well as the CCC Tech Center, reported similar challenges with the platform, including:

- Integration with the campus SIS is a longstanding barrier to participation, with colleges adopting and implementing a variety of systems (including homegrown) with a variety of

customizations that can be challenging to connect to eTranscript CA. The CCC Tech Center has been addressing these challenges in a couple of ways:
    - Modernization of integration tasks through the SuperGlue project, which provides colleges with software and a data exchange model built around Master Data Management (MDM) to give colleges the ability to connect disparate SISs to eTranscript CA and other systemwide tools (e.g., Canvas).
    - For colleges sending transcripts, the CCC Tech Center can provide available source code created by other participating colleges, as well as the experiences shared by prior implementers.
- The platform needs better support for third-party vendor integration. The software was not designed to support functionalities outside of the peer-to-peer data exchange, such as a student-initiated ordering, tracking and payment system, and retrofitting is needed to accommodate the connection of outside solutions and vendors. Colleges previously using Credentials benefit from an integration investment that front-ends the student request process using their native technology, but this has not been consistently implemented for all colleges/vendors.
- Common technical issues reported by participants included duplicative delivery of transcripts (specifically for district transcripts), and missing transcripts requested. In one case, missing transcripts were attributed to issues with the Parchment integration with eTranscript CA.
- CSUs and UCs reported frustration with inconsistent community college participation. CSUs have a vision for an automated workflow in which a student applies for transfer, indicating their previous community colleges(s) attended, and that would launch an automatic request to eTranscript CA to pull those transcript(s), with the student never having to initiate or pay for a request.
- Colleges can be unaware of their own participation in eTranscript CA. For legacy participants (both receiving and sending), it can be an “invisible process” for many on campus, who aren’t aware of the role it plays within their broader A&R systems.

Ranking of Features for Inclusion in an Electronic Transcript Exchange

During interviews, a Zoom poll was conducted to collect feedback on the value of existing and potential electronic transcript features. A visualization is provided below for the following poll items, displayed from left to right:

1. Single student user interface supporting ordering and fulfillments
2. Allowing access for multiple roles including students, and administrative users, including cases where students do not have fixed residences/phone numbers, gov issued ID
3. Reduced integration complexities for both sending and receiving organizations, including decreased time for delivery
4. Enhanced data privacy and security controls, including disaster recovery capabilities
5. Scalable system intended to handle an increasing number of transcript requests
6. Support batch transcript requests from an institution or system

7. Flags for completion of California-specific transfer frameworks: IGETC, CSU GE Breadth, CSU AI, or ADT
8. Ability to collect validated incoming student data that encompasses a wide range of achievements such as: degrees, certificates, credit hours, digital credentials, etc.
9. Ability to collect validated incoming student data that includes eligibility for social services (CalWORKs status, CalFresh status, Medi-Cal status)

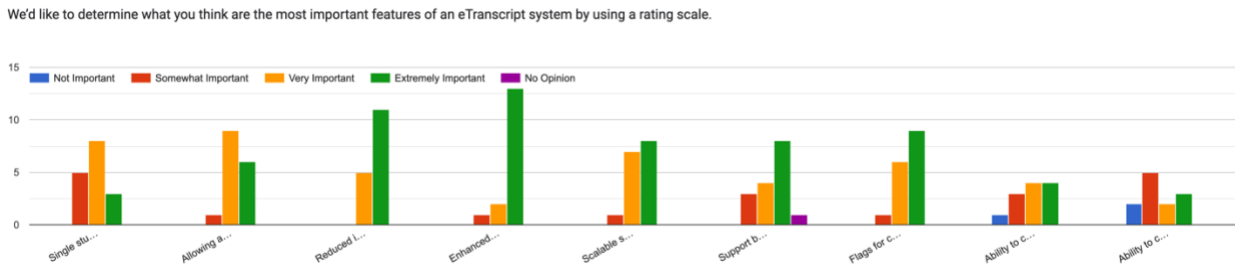

Figure 1: Zoom poll results

The top valued features identified by participants are:

- Enhanced data privacy and security controls, including disaster recovery capabilities
- Reduced integration complexities for both sending and receiving organizations, including decreased time for delivery

Features identified the least as priorities are:

- Single student user interface supporting ordering and fulfillments
- Ability to collect validated incoming student data that includes eligibility for social services (CalWORKs status, CalFresh status, Medi-Cal status)

Use Cases

Three areas were identified as having the greatest perceived value by stakeholders and are presented as use cases in this section.

1. Streamlined Transfer of Information

From the Field

Campuses in all segments use a variety of platforms and vendors for transcript exchange, with sometimes significant investment in connecting those platforms to their SIS and other campus solutions. While the CSU has infrastructure and governance in place to require their campuses to follow certain approaches or adoptions, the other segments do not. Because of this, all colleges have expressed that if a statewide system is adopted, what is preferred would be interoperability and data standards that would allow for an efficient, consistent exchange of data across disparate platforms.

Most colleges interviewed reported that fees generated from transcript fulfillment either represent a net loss or offset their operating costs. Only three colleges responded that a loss of revenue from their current transcript fulfillment process would create a burden on their campus operating budget.

Larger Context

Interoperability and data standards

Colleges across all segments have a fair amount of autonomy for which student information system, degree audit, transcript, and other related tools are used and how they are configured to work within their campus's overall IT infrastructure. In the future, there are likely to be a variety of tools, formats, and methods by which institutions of higher education and employers maintain, validate, and share information about non-traditional, competency-based credentials. Additionally, the need to handle older, out-of-state, and international transcripts will continue to persist, regardless of what is adopted for exchanges driven by the California Data Standard.

No single existing tool or solution will be able to address the complexity of the state's technology use and adoption practices. Further, reliance on any single vendor-run solution minimizes C2C's governance and change management abilities. Where colleges agree that consistency is possible is in leveraging the state data standard for vendors to deliver data in agreed-upon formats that can be easily digested by a variety of SISs and later, adhering to emerging standards related to the delivery of non-traditional credentials.

A landscape scan of relevant technology solutions and data and data delivery standards was conducted as part of this project (see Appendix B).

Revenue from transcripts

Colleges across the state handle transcript fees in a variety of ways. Institutions using vendors like Parchment have systems in which students order and pay for their own transcripts through those vendor services, even when integrated with eTranscript CA. These services allow for transcript delivery in the formats required or prescribed by the sending and receiving institutions and when applicable, allow students to pay additional fees for expedited service. Vendors charge students their own standard fees for the services selected and at times, an additional processing fee that is delivered to the sending institution. Each college determines how much to add to the vendor's fee for the student's total payment amount. The fee for Parchment and National Student Clearinghouse to deliver a standard transcript through their platforms is $2.50.

The CSU representatives interviewed reported that fees generated from students ordering transcripts through third-party vendor solutions either resulted in them breaking even at their campus or that the revenue was enough to fund staff positions. All reported that any revenue loss could be offset if more community colleges participated in the peer-to-peer data exchange in eTranscript CA, creating a more streamlined approach for processing incoming transcripts.

The UC representatives interviewed reported that their campuses charge a single, one-time document processing and validation fee as part of the student's enrollment cost. This fee funds a lifetime document request system, which includes transcripts.

With CA Ed Code § 76223 (2021), California community college students are entitled to up to two free transcripts. Students then pay for subsequent transcript requests, at least in the amount of what the vendor charges (when vendors are used), but often with an additional fee that gets delivered to the college. An online scan[1] of guidance from community college websites shows fees anywhere from $3-13 per transcript (non-expedited) when electronic transcript vendors are used.

Several colleges reported that the process of tracking the two free transcripts has been labor intensive for their campus. Additionally, the California Virtual Campus Initiative requires that colleges use eTranscript CA for students completing cross-enrolled coursework, with completion information routed from a student's Teaching College to their Home College free of charge. Managing multiple processes with variations on payment requirements creates an administrative challenge for campus A&R staff.

[1] Using a random number generator, 20 community colleges were selected for review. Each college's website included detailed information about their transcript fees connected with the use of an electronic transcript vendor.

Impact on Students

Colleges interviewed reported that students are often confused about which transcripts are required and how requests are fulfilled. Technical issues with third-party vendors (and lack of direct support) can also be frustrating for students, who may have admissions decisions delayed or negatively impacted.

Further, with no consistent approach to transcript ordering, colleges put the burden on students to understand all the permutations that may apply to their in-state academic records. This is especially clear for the growing number of students who complete coursework at more than one institution. Community college students may be asked to use the same ordering system, like Parchment, to send transcripts from multiple colleges that may have different fees for the same service, even within the same platform.

The most ideal workflow seems to be the one that is least transparent to students. When a student's community college accepts transcript requests from colleges directly in eTranscript CA and that student applies for transfer admission, the exchange handles the entire process on behalf of the student. Students are not responsible for a separate step that requires logging into a transcript platform, nor are they charged a fee.[2]

Recommendations

Develop requirements for interoperability for third party vendors and solutions (including eTranscript CA).

Due to the variety of transcript technology solutions that have been implemented and the broader IT infrastructure in place at each postsecondary institution, interoperability, especially as it relates to the delivery of transcript *data* vs. flat files, will be key to building statewide support for a consistent and comprehensive transcript system. To further this topic, developing and convening a group to address interoperability requirements will be necessary. The intersegmental steering committee that governs eTranscript CA may be the best place to start, but currently non-participating colleges will also need a seat at the table.

For traditional transcript exchange, the California Data Standard, built on the national standards of the Postsecondary Electronic Standards Council (PESC), should guide conversations around interoperability. It is most likely that the delivery formats of ANSI ASC X12 and XML will be the key requirements for connecting disparate systems. The process of developing standards for transcript data exchanges could also take into account the various instances when dual enrollment data is needed, such as at the point of application.

[2] For an example of how this is communicated to applicants, see information provided on the CSU Northridge website.

The new intersegmental group should work towards documenting requirements for interoperability and providing guidance on how campuses can address the variety of implementation challenges that may exist to meeting those requirements (e.g., SIS transitions, vendor availability). Transcript vendors that are predominately in use should be further examined to ensure their ability to meet data standards and requirements.

Maximize peer-to-peer data sharing functionality of eTranscript CA for in-state transfer of data.

Given eTranscript CA's adherence to the existing state data standard, its intersegmental governance, and the scope of its current implementation in the state, C2C should prioritize efforts to increase participation in the peer-to-peer data network to reduce the dependence on third-party vendors and student fees for in-state transcript exchanges, minimally, between community colleges and the CSU and UC. Institutions may wish to or need to continue their vendor relationships and revenue agreements for out-of-state transcripts.

Increased participation in eTranscript CA may require an investment in the modernization of the software and integration work for more community colleges to deliver transcripts through the *Accepting Electronic Requests* method, eliminating the need for students to initiate and pay for transcript delivery through other vendor solutions. C2C should work towards developing a readiness assessment and process for working with each college to determine implementation challenges and a path towards adoption while also working with the CCC Tech Center on documenting required enhancements or updates to the software to support colleges in their implementation.

While likely not an immediate next step, C2C may also wish to explore integration opportunities with the CSU and UC common admissions applications to automate requests for transcripts from community college transfer applicants for even more efficient articulation processes.

Develop an information campaign to communicate the value of eTranscript CA participation and reduced reliance on transcript fees.

The state would benefit from a coordinated effort to communicate the value of participation in the eTranscript CA network. Some benefits to communicate may include:

- Removing the burden on students having to manage inconsistent practices (and costs) to fulfill transcript requests.
- Leveraging a PESC-based data exchange (vs. PDF or other flat files) increases the integrity of articulation processes and reduces staff time.
- Reducing the impact of changes with outside vendors (e.g., product acquisitions) leading to the need to sign up for new or different solutions or needing to re-engineer existing integrations.

- Ability to participate in defining state-specific requirements and prioritizing enhancements at a level that is less likely when working with large, national, for-profit vendors.
- Creating more efficient and timely admissions decisions, which may lead to increased transfer rates and dollars to community colleges through the student success allocation of the Student Centered Funding Formula (e.g., increased transfer rates to four-year university or Associate Degree for Transfer awards conferred).

2. Competency- Based Learning & LERs

Competency-based learning, and the means of documenting or verifying this learning, encompasses a wide range of non-traditional records, including: Credit for Prior Learning (CPL), industry and military training or certifications, skills-based learning modules, electronic portfolios, and digital badges. While there are several educational data standards for assessment, course completion, and graduation, there are few unified standards that exist specific to workforce, co-curricular, and other data not generated directly from education institutions. The emerging national discussions around Learning and Employment Records (LERs) are driven by this desire for a comprehensive digital record of skills and competencies learned in supplementary education and training contexts, on the job, through volunteer experiences, or in the military.

From the Field

Results from the included table, *Ranking Features for Inclusion in an Electronic Transcript Exchange*, show across the group of individuals interviewed there was wide variation from “not important” to “extremely important" in the value ascribed to the inclusion of competency-based records within a learner’s transcript. The highest number of respondents ranked the feature as “somewhat important,” which was mirrored by their qualitative responses acknowledging they had only a general or limited understanding of these types of learning records, and little to no exposure with the concept of LERs. After an overview of LERs was provided, feedback from respondents followed two main themes of concerns and benefits:

- **Concerns:** There was expressed apprehension about records a learner would have control over and could curate. There was a high level of concern about fraud, especially in an increasingly tech literate generation, and if LERs would be prone to increased cyber security issues. Questions were also posed as to how current the data could be, and how complicated the process would be for updates or revisions to learner records.
- **Benefits:** There was a general acknowledgement from a user perspective that the ease of access to personal records could decrease time for admissions and hiring decisions. The LER would be an asset to learners if all their records could be contained in one place across their education and career pathways, given an increasingly non-linear approach to education and training. There was also agreement with the fundamental premise that learners should own their own data in the same way current users own their digital wallet data.

Within an Admissions & Records (A&R)/Enrollment context, there was agreement across sectors that validated data used for articulation and dual enrollment is essential. Non-traditional learning records were not viewed as necessary to the process of vetting incoming students or providing outgoing students with institution-verified records.

- **Concerns:** The value of competency-based information was deemed much less relevant for current A&R processes, with questions of how this learning would be assessed and used, and what burden this would put on staff, forming the common concerns.
- **Benefits:** There was tentative speculation that competency-based data could be of value to faculty in a holistic understanding of their incoming students, as a student-centered showcase of their own work, or as a useful addition to campus Career Center programming when students were seeking employment.

Respondents representing adult education, programmatic leads, and faculty were split between a status quo approach versus one that was responsive to change when considering the inclusion of non-traditional learning records across an institution's current practices. The major factors under consideration were:

- **Change Required:** Across all four segments (CCC, CSU, US, and AICCU) introducing new forms of learning records requires an awareness of the value of non-traditional learning, with some individuals acting as early adopters while others view potential change with resistance. It also requires staff/faculty training, along with change-management practices, and new frameworks in order to evaluate these records in a manner that results in the institution verifying the record for equivalent course completion, inclusion on a transcript, or as a pathway from noncredit to credit coursework. Half of the respondents in administrative and decision-making roles did not feel the inclusion of competency-based learning, and all the changes required in this process, was relevant to their admission processes or needed on transcripts.
- **ROI Considerations:** Within this group of respondents, roughly half the individuals indicated that modern learners are seeking a Return on Investment (ROI) when considering education options that encompass time needed in a course of study and direct applicability to viable work options. With many education and training programs available outside of the four segments, these individuals in administrative and decision-making roles expressed an awareness that capturing non-traditional learning and applying it in a way that reduces course time to degree, and cost, is a means to stay competitive.

Interviews further revealed there are leader schools in three segments that are already engaged in the work of analyzing and incorporating competency-based learning and establishing guidelines for incorporating the associated non-traditional learning records. Along with innovative uses of digital badges in the CSU system, early adopters in the AICCU system see the value of non-traditional learning records and digital credentialing not only after students

leave education but while they are going through their higher education programs. Within the CCC system, three distinct pilot programs are underway:

- **Credit for Prior Learning:** Norco College has developed and manages the Military Articulation Platform (MAP) Initiative, which currently includes 76 California community colleges that are systematically offering Credit for Prior Learning (CPL) for military and adult learners. About 30-35 of these colleges are very active in this process and the program network is growing. Current legislation mandates that all CCCs need to capture CPL and include it on their transcripts. In order to do this, faculty must assess all instances of CPL and "map" these instances against equivalent coursework. The MAP platform allows for more automated and digital ways to support articulation of these populations and allows institutions to share what CPL has already gone through this equivalency process. This means institutions can choose to adopt the same mapping and greatly reduce the time and effort of their own faculty. This also allows institutions to discover and share opportunities for CPL, to counsel students on what should be applied to their transcript, and to recruit potential students from certificate or training programs that have already been identified for CPL. The MAP approach covers the whole lifecycle from uploading documents, to offering credit, and then transcribing that CPL. Students can accept, deny, or repeal these offers of credit. In addition to the technology platform, the network is built on professional development and supporting policy changes. An example of policy change: community colleges have different course numbers, or Course ID (C-ID), so within MAP there are crosswalks to help align different C-IDs, but participants in MAP are also advocating on behalf of the Consistent Course ID initiative within the CCCs to better support these alignments.
- **Competency/Skill-Based Learning:** Currently, a cohort of 8 colleges are participating in the Competency-Based Learning (CBL) pilot within the CCC system. Shasta College is an exemplar in this pilot with their approach to capturing CBL as separate from CPL. This allows for a modularized approach to learning and an expansive application to tracking this learning in an institution's transcript process. Due to the modularized nature of CBL, the official transcript will include not only the CBL assets, but also how they embed in coursework, so receiving institutions can articulate this coursework to their own offerings just as they would with any traditional transcript record. An example of this approach: Skills A, B, C, and D are taught through self-directed modules. Faculty establish or vet an assessment for each module to determine whether a student has mastered the material at an 80% expectation or above. Then Skills A, B, C, and D can, en masse or individually, be applied to the components of a course or courses that can be recorded on a student's transcript. The process is to deconstruct learning into skills, and then reconstruct those skills into a course that can be accepted outside of their college. If successful, this approach could streamline the cost and time to course completion for learners.
- **LER Platform Technology:** As outlined in the recent press release, the platform provider Certree, a document anti-fraud and data security company, has partnered with Kern Community College District (KCCD) to provide a secure private "vault" to all its

students, alumni, faculty, and staff. With Certree, the three institutions affiliated with the district, Bakersfield College, Cerro Coso College, and Porterville College, can issue tamper-proof credentials such as proof of employment, proof of income, diplomas, transcripts, micro-credentials, and certificates. This pilot represents the capabilities of a Learning and Employment Record (LER) where traditional transcript data can be enhanced by non-traditional learning records due to the interoperability of the data exchange. An interview with Bakersfield College confirmed all incoming and outgoing transcripts now run through Certree, with updates happening immediately because the vault syncs in real-time with the college's data systems. Although students can use self-service requests to send their own transcripts, using Certree as a vendor means students still pay fees for these requests.

Larger Context

In considering updates to eTranscript California's platform that would capture competency-based learning as part of comprehensive LERs, it is important to understand national discussions around the shift to skills-based education and hiring.

As outlined by the National Governor's Association, *"Skills-based hiring is a method of recruiting employees that prioritizes a candidate's competencies over more 'traditional' qualifications like degrees. This hiring strategy can remove barriers that currently screen out qualified job candidates and bring a more diverse range of perspectives and skill sets into the workforce."*

In further analyzing Skills vs. Credentials, the latest data from the U.S. Chamber of Commerce shows there are 9.9 million job openings in the U.S. but only 5.8 million unemployed workers. To keep ahead of the labor shortage, Gartner's 2023 workplace predictions suggest the need for companies to assess applicants solely based on their ability to perform rather than adhering to rigid education and experience requirements.

If higher education institutions are going to remain relevant, they need to adopt the "and" versus "or" approach. If they have the ability to offer traditional degree/certificate programs **and** provide ways of capturing non-traditional learning within verified transcripts, they act as stewards of an increasingly diverse group of job seekers. This approach also helps ensure the relevance of the institution itself. As the Governor's Association goes on to explain, "state policymakers and governors across the country are showing increasing interest in skills-based hiring... by eliminating degree requirements." As a growing number of policy makers consider removing degree requirements from state-supported jobs, learners and job seekers will also question the relevance of institutions that only offer and provide transcripts for degrees that are no longer required to secure employment.

Along with considering the inclusion of non-traditional learning records, higher education institutions now can participate in a larger ecosystem of data exchange through LER platform

technology. As outlined by the T3 Innovation Network, LERs strengthen the link between education and workforce development:

- **Learners and Workers** will have more control over information about their education and experience, making it easier for them to find new jobs or advance at their current organizations.
- **Employers** will be able to find the best candidates for their open positions and verify a candidate's competencies and credentials.
- **Education, Training and Credentialing Providers** will be able to document learning and align their curriculum, credentials, assessments and career services with a rapidly changing job market.
- **Government** will be able to more effectively collect data and implement effective policies that allocate resources to support education and workforce development.

Impact on Students

Responses from students reinforced the supposition of faculty and staff across segments who felt enhanced transcripts capturing competency-based learning would be beneficial to students as they exit from education into the workforce. One respondent felt instructors might be split 50-50 in the value they place on skills versus coursework, yet employers would want to know that a candidate had the skills required for the job. Student interviewees felt employers would place more value on the skills themselves versus having a degree without any skills verification.

In discussing LERs, students were not familiar with this emerging technology, which was similar to the trends found with postsecondary staff. They were intrigued by the idea they could maintain their own records and have the ability to share those records seamlessly with colleges and employers. One respondent expressed concern over falsification of data, while another, who was familiar with digital wallet technology, indicated the benefits of having one location for all documentation that could reduce the risk of loss and increase the security of data. LERs were considered a way to tell the whole story of what a person was able to do based on their degrees, skills, and accomplishments versus a traditional transcript that was compared to telling only half the story.

Recommendations

Explore and establish data format standards for Learner and Employment Records (LERs).

As indicated in the recommendations for Use Case 1: Streamlined Transfer of Information, the first phase of work should be focused on improving the functionality of the current eTranscript CA platform and increasing peer-to-peer data sharing through use of the Accepting Electronic Requests exchange. Due to the emerging nature of competency-based records, often in the form of digital credentials or badges, and the absence of a uniform state or national platform for

Learning and Employment Records, C2C in collaboration with the CCC Tech Center should then explore and define the data standards needed to expand eTranscript CA.

The PESC Credential and Experiential Learning standard is a reasonable place to start for further research into data format standards, given the reach and legitimacy of other PESC data standards. Additionally, the 1EdTech Comprehensive Learner Record (CLR) standard leverages the Open Badges standard and is compatible with the W3C Verifiable Credentials and the Credential Engine Registry. Recommended by AACRAO, the American Association of Collegiate Registrars and Admissions Officers, this technical specification is designed to support traditional academic programs, co-curricular and competency-based education, as well as employer-based learning and development. 1EdTech hosts both publicly available resources and the option for further support through membership. In tandem with exploring and establishing a framework for data standards, C2C could also explore feasible data sharing partners such as military equivalencies, third party certifications that are endorsed by professional associations, and state licensure.

It would also be valuable in the prototyping phase to engage students in focus group interviews, following the format outlined in *The Promise of LER Technology for Digital Equity* report by Digital Promise. When learners are able to co-design the user interface, it promotes their agency in how they display and share their non-traditional learning records with potential employers. Given the Kern Community College District is currently piloting the use of LER technology through Certree, it would be valuable to include students across this district in focus groups to determine their experiences collecting and sending these expanded transcript records.

Conduct focus group interviews with employers to capture input on skills-based hiring practices.

Skills-based education, along with comprehensive transcripts that include traditional and non-traditional learning records, are one half of the ecosystem. The other half comes from the emerging shifts that are occurring in hiring practices that focus on skills instead of degrees alone.

In the next phase of this project, the WestEd team can facilitate introductions to national groups, including the Retail Opportunity Network, who are engaged in these discussions around skills-based hiring. The team can explore referrals to employers within California who are already engaged in shifting their hiring processes, or are considering it.

C2C will then have the opportunity to gather information from the field, in a manner similar to the interviews represented in this report with higher education representatives, to generate use cases of employer needs that can support the expansion of eTranscript CA to include the forms of learning records these employers would value.

Curate information sessions for participants from all four higher education segments to learn about competency-based education and LERs.

Given the still emerging understanding around how to assess and integrate competency-based learning, and how this learning can be captured within transcripts that are compatible with LER technology, C2C is uniquely positioned to provide a statewide perspective on this opportunity for change.

Information and discussion sessions could begin with open registration webinars to provide not only an overview of these topics, but also to share innovative practices, such as those represented by the MAP initiative, the Competency-Based Learning initiative, and the Certree pilot.

The incredibly wide range of attitudes and practices across the four segments indicates that adoption of enhanced transcript technology will also follow an early adopter model. With this in mind, the WestEd team collected confirmation during the current round of interviews from any institutions willing to pilot new eTranscript CA capabilities. The information sessions could be a second form of outreach to gather a cohort of institutions willing to pilot and provide feedback on these enhancements, prior to a statewide launch.

3. Social Service Assistance Information

Supporting students to apply for public benefits such as CalWORKS, CalFresh, or Medi-Cal requires mechanisms for collecting intake data from students on support services they might need and be eligible for, for example: food, housing, medical coverage, and foster youth status.

From the Field

Interviews across the segments revealed the way this information is currently collected across campuses varies widely.

Within the CCC segment, CCCApply provides the majority of these details about students. It is then up to the colleges to work with students on their own intake approaches for gathering more information about students and their eligibility. Currently, gathering this information from incoming students and re-checking their status at the start of each new term is a very manual and time-consuming process. Given these factors, there is a concern that some students could inadvertently be omitted from this process, or are not aware of the services available to them.

Within the CSU system, their admissions application has foster youth and housing insecurity questions, although this information is self-reported. Currently, the colleges must contend with the factor that some incoming students think if they indicate they need help, it might impact their chances of admission. Although this isn't the case, it can cause hesitation, especially in uniform ways of indicating this information prior to admission. Once a student has been admitted, many campuses have departments that specialize in this intake and work with students who have

support needs. For example, some campuses have a Health Center, Student Support Center, etc.

For the UC segment, a limited amount of information can be self-disclosed on the UC admissions application, but this does not encompass all the information needed that would transfer to campus services. Foster youth, LCFF+, first generation status, etc. is all voluntary information on the application, so most students, once admitted, need to directly seek out student support services.

Given these factors, interviewees did express the benefit of comprehensive and coordinated information, but there was increased concern around data security issues if this information would transfer along with transcripts. These concerns centered around three major factors:

- **Timeliness of data:** Campuses need to check this information at the start of every term, given the changes in circumstances that students can encounter during their entire education journey. If the data was not updated and provided to the campus with regularity, even a streamlined delivery once a year would not suit their actual service needs.
- **Student apprehensions:** The majority of respondents felt students would not want to volunteer this data through a platform exchange given their concern over who would see it and how it could be used.
- **Appropriate recipients:** More concern was expressed over this data than any other data category included in an electronic transcript exchange, particularly in regard to how this data could transfer to the correct staff and departments on campus. A respondent from the AICCU segment indicated that if this information from the transcript exchange could go into their SIS, it could be delivered to the appropriate staff. One solution suggested from the CSU segment was to parse out this data to ensure that anything related to student support services would go to the appropriate departments/individuals on a campus, and not just into a general A&R/Enrollment database.

Larger Context

The question of whether Social Services information should be included in an enhanced version of the eTranscript CA platform mirrors a similar project conducted by the California Cradle-to-Career Data System and WestEd, as outlined in the report The Student Experience Audit. In this audit, the intake of student and family information on the Free Application for Federal Student Aid (FAFSA) form was explored. The interviews focused on the pain points and opportunities that students experience during the process of applying for financial aid and requesting or sharing electronic transcripts. Pain Point 1 was identified as a lack of resources to support students with special custodial circumstances. Pain Point 2 was a deep-seated fear to complete any government-related form and a general mistrust of local and governmental institutions. Pain Point 3 was a lack of embedded guidance of post-application requirements.

These three pain points are a corollary to the larger discussion around the identification and intake of data related to wrap-around support services students need, in addition to their financial aid packages as determined through their FAFSA data. Students not only require support in understanding the "how" and the why" for including voluntary information about their needs as they are applying for admission to a campus, they also need to understand how they convey if those needs change throughout the course of each year as they attend the institution, and they need to know what departments on campus are available to support them in an ongoing manner.

Impact on Students

Student reactions to the concept of transcripts including social services data reinforced the apprehensions expressed in faculty and staff interviews across segments. Students felt this type of data was objectively different from transcript data, was more sensitive in nature, and required a separate application structure. Although it was expressed that the ability to capture this personal information in one place rather than across multiple applications or departments was preferred, students felt adding this information into a transcript made the process more complex rather than more streamlined.

Recommendations

Create a Support Services tool that launches from the California Cradle-to-Career Data System website.

Given the legitimate concerns expressed from the field through the eTranscript CA interview process, and the similarity in the feedback gathered during the Student Experience Audit, it is not recommended that an expanded version of a statewide transcript exchange also includes data related to social services.

Instead, C2C already has a landing page through their website designed to host a set of resource tools for specific audiences. This would be the ideal location to also host a tool to provide information and resources to students and support services staff, along the same lines as the Financial Aid for All site that was created to address these concerns around the FAFSA. The tool could be specifically designed to address the capture of wrap-around service data from the following student-centered perspectives: acknowledging the hesitations in providing this information, dispelling these misconceptions, and outlining the benefits in collecting this data.

Going further, it would be worth exploring efforts to provide linkages to public benefits that are coordinated with data collected at the point of application to postsecondary, thereby shifting from a self-disclosed data format to self-disclosed that could be linked to verified data. This could also be embedded in an intake form provided at the start of each new term that support staff could use or integrate into their Student Information Systems.

Appendix A: C2C E-Transcript Interview Protocols

Postsecondary IT and A&R Staff

1. What is the current process at your college or within your district for managing incoming and outgoing transcripts?
2. Has your college or district sought to establish a common platform for sharing transcript information? If so, which platform? If not, do you know which platforms most of your institutions use?
3. Is there revenue coming into your institution from transcript requests? If yes, would it create a burden to lose this funding? If no, would it create a benefit if a platform was subsidized by the state?
4. What benefits do you see in a platform that could collect comprehensive transcripts and data from students who attend multiple institutions in their education pathway?
5. How would you define dual enrollment and what are your related data management processes for these students? Would a uniform approach be valuable for your institution?
6. We'd like to determine what you think are the most important features of an e-transcript system by using a rating scale. (Interactive Zoom poll.)
7. Do you currently use/have mechanisms for collecting intake data from students on support services they might need (ex. food, housing, medical coverage, and foster youth status)? Would a uniform way of collecting this data be valuable to your institution? Would you see any potential hesitation on a uniform way to collect this?
8. Are you familiar with nontraditional or competency-based learning records, such as e-portfolios and digital badges? Do you feel they hold valuable information that should be added to a comprehensive e-transcript platform?
9. Are you familiar with the emerging discussions around digital wallets and LERs (Learning and Employment Records)? What value would you see in a platform that was compatible with this technology?
10. What type of support or training would you anticipate admissions, business, counselors, or other staff to need if a new e-transcript platform was adopted statewide?
11. Are there other comments or specific questions related to e-transcripts that you'd like to see gathered from these interviews?
12. We are planning to gather recommendations from the student perspective. Do you have a student who would be well suited to this?

Faculty Interviews

1. How is your college currently documenting credit for prior learning (e.g., military experience, credit by exam) for incoming students?
2. Is your college working with nontraditional or competency-based learning records, such as e-portfolios and digital badges?
    a. Do you feel they should be added to a comprehensive e-transcript platform?
3. What do you think faculty opinion would be across your campus in regards to understanding the background of incoming students through their competency-based records? Would training be required so faculty could understand how to use this information to inform their courses?

4. Are you familiar with the emerging discussions around digital wallets and LERs (Learning and Employment Records)?
    a. What value would you see in a platform that was compatible with this technology?
5. Are there other comments or specific questions related to e-transcripts that you'd like to see gathered from these interviews?

Student Interviews

1. Have you needed to request or send transcripts from any of the higher ed institutions you have attended? (This could include community colleges, state colleges, public and private colleges or universities, and technical or training schools.) If yes, what was the process like for you? Was anything about the process confusing?
2. Were you ever taking high school and college classes at the same time? If so, what was it like sharing that information in your transcripts?
3. Have you participated in any programs or training, including military programs, that allowed you to earn skills-based credentials, such as digital badges or certificates showing you have a particular skill?
    a. Did you try to earn Credit for Prior Learning (CPL) for credentials or previous training?
    b. Would you want to be able to include these types of skills-based certifications in your official transcript?
4. Have you ever been asked to send a transcript (official or unofficial) to a potential employer? If yes, what was the process like for you? Do you think it was an important part of getting the job/internship/work experience?
5. Have you ever been contacted because an employer had requested your transcript and you had to agree or decline to let the employer receive it? Were you aware they were going to make the request, or did you find out afterward? What were your thoughts on this process?
6. Are you familiar with digital wallets or Learning and Employment Records (LERs)? Would something like this be useful for ordering/fulfilling requests for your academic or work history?
7. Would you be comfortable/prefer using a transcript platform that allows you to submit an application to receive public benefits such as food aid, health insurance, or cash support for parents?

Appendix B: LER Standards & Technology Landscape Scan

Objective of this document: Develop a primer of existing e-transcript (and related) data standards in support of enhancing eTranscript California to provide Learning and Employment Records (LER) through the California Cradle-to-Career Data System (C2C). This document also includes relevant software solutions identified by stakeholders.

Summary:

- There are a variety of educational data standards for course completion, graduation, and assessment data but few standards specific to workforce/co-curricular and other data.
- Standards may address the definition of elements and their relationships and/or rules for digital formats for storage and transmission (some do one or more).
- The PESC Credential and Experiential Learning standard seems a reasonable place to start for further research into *data format standards* given the reach and legitimacy of other PESC data standards but it needs to be evaluated.
- The 1EdTech Comprehensive Learner Record (CLR) standard seems a reasonable place to start for further research into *data exchange standards*.
- The National Student Clearinghouse LER initiative appears to be particularly relevant to the development of workforce/cocurricular data exchange considerations but limited information available online about the development of data dictionaries or other specific standards.

Sources:

Category	**Standard/Initiative/Tool**
Standards Inventories	LER Hub Overview
	EdMatrix Overview
Data Standards	PESC College transcripts
	PESC Experiential learning
	CEDS Background
	Ed-Fi Background and Standards
	1EdTech – Open Badges Background
	1EdTech – CLR Standards Background

Standards-Related Initiatives	EdExchange Background
	LER Background article, Website details, White paper
	Open Skills Network (OSMT) Overview and Documentation
	Lightcast Open Skills Website & FAQ
Related Tools	e-Transcript California Data specs, CA Electronic Transcript Standard, FAQ
	Parchment Background
	Certree Background
	Liaison CAS and WebAdMIT
	National Student Clearinghouse Electronic Transcript Exchange
	SPEEDE Server Overview

Summary of Standards

Standard	Key takeaway	Description	Types	Data Layers	Uses	Context
PESC College Transcript Approved Standard	Most common standard; often foundational for others	Developed for use by postsecondary educational institutions to send current and historical records of educational accomplishments and other significant information for students who are or have been enrolled at the sending institutions. The college transcript contains personal history and identifying information about the student, the current academic status, dates of attendance, courses completed with grades earned, degrees, diplomas and certificates awarded and selected test scores.	Organizational Personal Event Achievement Credential	Data Dictionary Data Model Serialization	XML	Higher Ed
PESC Admissions Application Approved Standard (Academic Record)	Most common standard; often foundational for others	Developed for applicants looking to be admitted into the postsecondary environment and for use by colleges and universities (college/university systems), states/provinces (state/provincial systems), application centers, high schools, districts, vendors, government agencies and service providers.	Organizational Personal Event Achievement Credential	Data Dictionary Data Model Serialization	XML	Secondary Ed Higher Ed

PESC Credential and Experiential Learning	Has workforce-related data standards and other co-curricular data elements	An XML Data Standard to be used by any organization, college, university, school, district, state, province, and/or service provider to fully communicate degrees, certifications and other similar credentials obtained by the student.	Organizational Personal Event Achievement Credential	Data Dictionary Data Model Serialization	XML	Higher Ed Workforce
CEDS	Federal standard; crosswalks with PESC standards	From IES, the Common Education Data Standards (CEDS) initiative includes a common vocabulary, data models that reflect that vocabulary, tools to help education stakeholders understand and use education data, an assembly of metadata for other education data initiatives, and a community of education stakeholders collaborate to expand the standard and implement CEDS-based solutions.	Organizational Personal Event Achievement Credential Competency Content Metadata	Data Dictionary Data Model		US Primary Secondary Postsecondary
1EdTech Open Badge	Exchange/delivery standards	Format for communicating skills and achievements as detailed metadata for use in open-source digital badges.	Achievement Credential	Serialization Protocol	JSON	Primary Secondary HigherEd Workforce

1EdTech CLR Standard	Exchange/delivery standards	Technical spec designed for sharing of traditional academic programs, co-curricular and competency-based education, and employer-based learning and development. Endorsed by AACRAO.	Achievement Credential	Data Dictionary Data Model Serialization Protocol	JSON	Primary Secondary HigherEd Workforce
Ed-Fi Data Standard	May be helpful to see how an open source K12 data standards initiative is managed (governance model, etc.) but they have no plans for addressing postsecondary and workforce data yet.	A common model providing the data elements and serialization formats on which all other Ed-Fi data systems are based. (There is also an Assessments standard that might be relevant for credentialing considerations.)	Organizational Personal Event	Data Dictionary Data Model Serialization	JSON	PK Primary Secondary
Ed-Fi Core Student Data API	May be helpful to see how an open source K12 data exchange standard is managed	Describes a REST API surface that covers the core data domains typically managed by student information systems in K–12 education. These standards can be used to drive analysis of student performance, both alone and in combination with data from other systems.	Organizational Personal Event Achievement	Serialization Protocol	REST, JSON	PK Primary Secondary

Summary of Standards-Related Initiatives

Initiative	Key takeaway	Description	Types	Data Layers	Uses	Context
EdExchange	Directory of PESC-following institutions with their full technical capability documented. eTrans is leveraging this exchange as part of their modernization process.	Data exchange service offered and operated by PESC and directly managed by PESC Members. The foundation of the service is a directory 'look up' server that lists institutions, service providers and others that are able to exchange data electronically. User group includes AACRAO, CCC, CSU, National Student Clearinghouse, Parchment, USC, Stanford and other AICCU	Organizational Personal Event Achievement Credential	Data Dictionary Data Model Serialization	XML	Secondary Ed Higher Ed Workforce
LER	The pilot focuses(ed) on cybersecurity credentials and utilizes blockchain technology and the Myhub learner platform. Appears to focus on supporting technical interoperability across new and emerging LER networks to promote transfer for verifiable skills, credentials and training data. Can't locate info on current status or a data standard.	The National Student Clearinghouse, along with other members of the Learning Credential Network, partnered with the U.S. Department of Commerce's American Workforce Policy Advisory Board in 2020 to develop a nationwide pilot to translate all education, training, and work experience to a record of transferable skills.	Organizational Personal Event Achievement Credential			Postsecondary Workforce

Open Skills Network; OSMT	Aims to provide common language for Rich Skill Descriptors (RSDs); works with Open Badges. Built on CTDL-ASN Architecture.	The Open Skills Management Tool (OSMT) is a free, open-source database technology that facilitates the creation, storage, and publication of Rich Skill Descriptors (RSD) for sharing and reuse.	Achievement	Library	n/a	HigherEd Workforce
Lightcast Open Skills	Provides a library and API for using skills that have been organized around a traditional taxonomy + dynamic based on rich data stores.	Open-source library of 32,000+ skills gathered from hundreds of millions of online job postings, profiles, and resumes	Achievement	Library	n/a	HigherEd Workforce

Summary of Relevant Tools

Tool	Key takeaway	Description	Types	Data Layers	Uses	Context
e-Transcript CA	ASCII-based standard with emphasis on those areas unique to California student transcripts such as IGETC, CSU GE, and appropriate Certification notifications	The California Electronic Transcript Standard establishes a data format for transmitting California specific student transfer data (IGETC, CSU GE Breadth, CSU AI, Certification information, Associate Degree for Transfer details, and District-wide Transcript support)	Organizational Personal Event Achievement Credential	Data Dictionary Data Model	Upload: XML or ASCII Download: XML, EDI	Higher Ed
Parchment	Digital transcript and certification software services; includes CLR and digital badging solutions	Parchment CLR Services: visual credentials that simplify and contextualize co-curricular, experiential, competency, and program data for learners, employers, graduate schools, and other stakeholders Parchment Award - Digital Badge & Certificate Services For Employers, Businesses & Other Organizations	Organizational Personal Event Achievement Credential	Proprietary software solutions	Transcript solutions compatible with SPEEDE EDI and PESC XML schemas; involved in 1EdTech data standards projects	Primary Secondary HigherEd Workforce

Certree	A learner record store software solution with a focus on the data subject (student, employee) being the data owner and emphasis on user-centered privacy and security.	Schools and employers must be issuers/verifiers for a user's data to be available. Schools can share transcripts, diplomas, proof of enrollment, micro-credentials, course certificates. Employers can issue proof of employment and income.	Organizational Personal Event Achievement Credential Employment History	Proprietary software solution	Likely a document based (PDF) delivery and storage system vs. data schema that addresses interoperability	HigherEd Workforce (may be others but unclear)
Liaison CAS and WebAdMIT	Custom application solutions provided (data dictionaries are unique for each CAS and cycle); WebAdmit is the college set of tools and workflows for admissions processes	Vendor for admissions application used by CSU (AICCU also represented here). Has other tools/services to support prospective student marketing (CRM), reporting on admissions trends, etc.	Organizational Personal Event Achievement	Proprietary software solutions		Primary Secondary
National Student Clearinghouse Electronic Transcript Exchange	National electronic K12 and postsecondary transcript service used across all segments. Free but institutions can decide if they want to charge students.	Electronic Transcript Exchange (ETX) is a secure national exchange that enables secondary and postsecondary schools, systems, states, and educational organizations to automate transcript exchange.	Organizational Personal Event Achievement Credential	Proprietary software solutions	Supports multiple file formats (PESC TS130, PESC XML), including PDFs	Secondary Postsecondary

SPEEDE Server	Maintained by NSC; Free transfer exchange using standards set by ANSI and PESC; governed by AACRAO committee. This is how AICCU participants receive through eTran CA.	SPEEDE Server is an electronic data exchange server that allows free, open and secure exchange of education documents and data between institutions and solution providers. SPEEDE is utilized when partnering schools need a mechanism to safely and securely exchange education documents between them.	Organizational Personal Event Achievement Credential	Open exchange system	ANSI ASC X12 compliant files are exchanged via email or FTP	Secondary Postsecondary