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Introduction

State stakeholders, including policy makers, state agencies, employers, and education providers, are searching for ways to help learners and workers find the most efficient and equitable pathways to secure the right skills and credentials that lead to good jobs. Credential and skill transparency helps state stakeholders uncover, understand, and work to solve inequities, while also providing individuals with increased agency to find, understand, and compare opportunities to advance along their education and career pathways. Verifiable Learning and Employment Records (LERs) are emerging as a powerful tool that, when implemented and utilized as part of a state's broader investment in data transparency and learner/worker sovereignty, can help take friction out of inefficient labor markets and reveal new opportunities.

Currently there are nearly 1,000,000 unique credentials offered in the U.S. With so many credentials to choose from, people get lost and lose out on opportunity. Learners and workers too often don't know which credentials and skills lead to desired outcomes. Employers are unable to understand what skills workers actually bring to a job. Educators are rushing to keep up with changing requirements in the workplace. This complexity is compounded by the fact that credentials are issued to individuals without transparent information about what skills those credentials represent. State leaders are in a unique position to require that LERs include transparent information and make these digital records foundational in their education and workforce strategies. Not only do states have responsibility for education and training, but they have also invested in data tools for empowerment and improvement. State leaders can build a culture that encourages state government, employers, and education and training providers to work in a coordinated and aligned fashion to improve data transparency in learning and career systems and LERs issued to individuals.

New LER technologies that allow credential and skill data to be aggregated, analyzed, and made actionable for career success. LERs empower people with records of their own achievements, offering a transformative opportunity to connect learning with careers and to improve the impacts of investments in education and workforce development.

The big picture goal is to ensure that policy and state actions create ecosystems where LERs are widely accessible, understood, and trusted, inclusive of all aspects of an individual's education, training, military, and work achievements, and shareable so that LERs securely connect people to opportunities. This Action Guide provides steps to get there, to enable more efficient career navigation and provide more equitable access to actionable information through LERs.

This Action Guide describes the phases and steps that stakeholders can take to develop and sustain trusted LER ecosystems. It is based on Credential Engine's widely and successfully used State Roadmap and Action Guide for Transparency (see History and Context below). Specific supporting resources are included in this Guide, as well as tools and resources on the <u>Credential Engine state</u> partnerships site. These resources guide why and how to connect LERs to their necessary data transparency infrastructure. Together we can achieve the goal of empowering people with LERs that unlock equitable opportunities.

Phases and Steps

Understand the Value

- Learn how LERs can benefit learners, workers, educators, employers, policymakers, and other
- Participate in cohorts for shared learnings and collaborative actions

Engage with Key Stakeholders and Make the Case

- Identify key stakeholders to engage
- Communicate clear use cases and stories illuminating the benefits for learners, workers, educators, employers, policymakers, and other stakeholders
- Identify what data about education, training, experiential learning, credentials, skills, and employment need to be transparent and publicly available to support use cases
- Commit to interoperability principles
- Commit to inclusive and equitable design

Analyze Existing Policy, Initiatives, Data, and Technologies

- Align with goals and initiatives for access, attainment, quality, affordability, economic advancement, and equity to ensure continuity and impact
- Inventory related credential, skill, and job data
- Inventory current related processes and technologies
- Identify necessary wrap-around supports
- Define an action plan to get from current state to support for beneficial use cases

Implement New or Improved Policy, Initiatives, Data, and Technologies

- Execute on the action plan
- Publish and make transparent and actionable all related credential, skill, and employment data
- Implement or improve related processes and technologies
- Establish effective and equitable wrap-around supports

Sustain through Enduring Commitment

- Ensure sustainability through legislative, agency, and institutional policies that continuously improve LER processes, data, and technologies
- Establish processes for ongoing improvements
- Commit to durable infrastructure for enduring LER value

Understand

Understand the Value

- Learn how LERs can benefit learners, workers, educators, employers, policymakers, and other stakeholders
- Participate in cohorts for shared learnings and collaborative actions

The first step to making any change is recognizing current challenges and understanding solutions. A growing number of states are committing to using open standard LERs and making credential, skill, and job data open and public to provide meaningful context for LERs. Stakeholders who are exploring this work can build their knowledge and encourage their staff to learn about how states are addressing equity and attainment goals, better aligning P-20W systems, navigating economic changes, and other priorities. States are demonstrating the critical role of leadership and the need to make the case about the value of this work for meeting the specific goals of the state.

Leadership is critical to creating a vision for learning and career ecosystems that work. State leaders need to raise expectations that everyone-opportunity seekers, employers, education and training providers, project leaders, and policymakers-deserves to have timely, accurate, accessible information to guide their decisions. When actionable, meaningful information is included in LERs so that individuals can collect, curate, and share records of what they know and can do, learning and career ecosystems can grow and thrive for everyone's benefit.

Resources for understanding

Cohorts for shared learning; these also provide collections of resources for learning:

- <u>Credential Engine state partnerships</u>
 - Making Sense of Credentials and Skills: Credential Engine and State Success Stories
- National Governors Association Skills-Driven State Community of Practice
- T3 Innovation Network LER Resource Hub
 - Introduction to LERs video

Engage

Engage with Key Stakeholders and Make the Case

- Identify key stakeholders to engage
- Communicate clear use cases and stories illuminating the benefits for learners, workers, educators, employers, policymakers, and other stakeholders
- Identify what data about education, training, experiential learning, credentials, skills, and employment need to be transparent and publicly available to support use cases
- Commit to interoperability principles
- Commit to inclusive and equitable design

The next step to making any change is building awareness, understanding, and demand for that change with key stakeholders. By committing to and communicating the value and importance of LERs, stakeholders will be positioned to understand next steps and see their role in the work. Key stakeholders need to be identified to engage in the initial definition of the work, and as use cases and stories are defined, these can be used to engage additional stakeholders.

One key dimension is understanding the ways that current, comprehensive, and comparable data in open standard LERs will help advance states' priority goals and initiatives. Everyone should have access to real-time, complete, and trustworthy information, anytime, anywhere, that lets them make the best informed decisions about how to match people and their achievements with opportunities.

Unless credentials are defined using consistent language and data structure, it is almost impossible to make comparisons and connections among them, which limits their value for decision making. The Credential Transparency Description Language (CTDL) is an open-source schema that makes it possible for all credentials, skills, jobs, pathways, and more from numerous providers and sources to be consistently defined, organized, and compared. Without a commitment to have information in consistent data structures, stakeholders lack transparency about what LERs mean and how they are valuable.

Open standards interoperability is foundational. Principles of interoperability include not only technology standards, but also commitments to transparent access to information, universal access, inclusive design, and privacy, security, legal, and regulatory adherence. Understanding and committing to these underlying principles need to precede technology decisions. Interoperability

includes the ability for systems and processes to work together, across education and workforce, but technical interoperability is not sufficient without informed commitment to the principles that make LERs meaningful, valuable, and equitable in human-centered processes.

Resources for engaging

(See also resources above)

- Stakeholders:
 - o Communicating the Value of Competencies (see "Communicating the Value" and "Scenario" sections) (American Council on Education)
 - Learning and Working in the Digital Age (Brookings Institution)
 - Stakeholders and Roles section below
- Use cases and stories:
 - <u>Learning and employment storyboards</u> (Velocity Network Foundation) (more forthcoming)
 - Skills-based hiring master use case (T3 Innovation Network) (forthcoming)
 - <u>Strategic Storytelling Toolkit</u> (C-BEN)
 - <u>Use Case Primer, Landscape, and Template</u> (T3 Innovation Network)
- Data about credentials, skills, and employment:
 - o <u>Credential Registry LER Technical Guide</u>
 - o <u>Credential, skill, and job data transparency</u> (Credential Engine)
 - <u>JEDx</u>: Jobs and Employment Data Exchange (U.S. Chamber of Commerce Foundation)
- Interoperability:
 - o <u>Digital Credentials Consortium</u> (MIT)
 - Interoperability: Making the Future of Work, Work (Velocity Network Foundation)
 - o Interoperable Learning and Employment Records (Competency-Based Education Network) (forthcoming)
 - Verifiable Credentials Wallets for Learning and Employment (JFF)
- Inclusive and equitable design:
 - o Inclusive Design Principles for Learning and Employment Records: Co-Designing for **Equity** (Digital Promise)
 - o Skills Visibility: Why and How a Skills-Based Economy can be More Equitable (Education Design Lab)

Analyze

Analyze Existing Policy, Initiatives, Data, and Technologies

- Align with goals and initiatives for access, attainment, quality, affordability, economic advancement, and equity to ensure continuity and impact
- Inventory related credential, skill, and job data
- Inventory related processes and technologies
- Identify necessary wrap-around supports
- Define an action plan to get from current state to support for beneficial use cases

States put a significant focus on jobs and economic development. There has been an increase in programs, priorities, and policies aimed at helping people increase their knowledge and skills to adapt to the changing economy. State leaders need to understand how LER initiatives can be connected to other priorities so they are more powerful than operating in silos. Through stakeholder engagement and definition of a shared vision, LER initiatives need to align with state priorities and goals. This alignment should inform coordinated, concrete plans for how to achieve shared goals.

LERs can empower people with meaningful information about what they know and can do, enabling them to advance on career pathways and contribute to economic growth; however, if LERs and the data they contain are not contextualized and consistently supported across systems and processes, these opportunities will not be realized. Use cases and stories can serve as framing devices for alignment with state goals, inventories of the current related processes, systems, and data, and, importantly, clear definitions of the support and services people need to use LERs effectively and equitably. Current systems and processes might not support LER goals, but a strong commitment to interoperability and inclusive design principles from the start can keep the analysis focused on solutions that will equitably and sustainably address the goals. Action plans define how to bridge the gap from current state to future state. Well defined use cases can help guide what's in and out of scope, and how the work can be phased.

Data about credentials, skills, and employment need to be connected throughout learn and work processes. A state's data ecosystem from early childhood through the workforce should be one that provides learners, jobseekers, and policymakers with access to the information they need to make decisions about quality, relevance, outcomes, and current and future opportunities. This requires a strong data infrastructure using common definitions that facilitate connections and collaboration across agencies. Aligning LER goals with existing education and workforce data commitments will help reduce redundancies and costs in data collection and reporting as well as improving interoperability and efficiencies across systems. Coordination may be needed across state longitudinal data systems (SLDS), unemployment information (UI), labor market exchange data (LME), and other data sources and systems.

States have multiple, often siloed and duplicative ways that they inventory and collect information about credentials and skills of all types. Higher education agencies track postsecondary degrees and credit-bearing certificates, workforce boards track WIOA eligible training programs that include certificates and apprenticeships, licensing agencies inventory state occupational licenses, etc. While these processes cover many credentials offered in a state, few states have a full view of every credential offered-for example, badges and credentials offered through employers are traditionally left out of current state processes. In order to reach the goal of full transparency, states need to understand as fully as possible the current landscape of credential and skill data.

Full transparency is an important goal for long term scaling and sustainability. Within that goal, a targeted data inventory can focus on the specific information needed to implement prioritized LER use cases. For example, an LER initiative might focus on connecting credentials, skills, and jobs for

targeted in-demand occupations. And within that focus, employers could define the specific data that helps them match candidates to jobs. CTDL includes over 800 terms that can be used to describe credentials, skills, and jobs, but not every term is necessary or relevant for specific use cases. A gap analysis can be based on defining the types of information needed for implementing the use cases, an inventory of current data, and establishing minimum required and benchmark data for achieving specific goals.

A process and technology systems inventory can also focus on what's needed to implement the use cases and, overall, achieve short- and long-term LER goals. Processes and systems should be considered together to avoid silos or dead-ends; stories can help stakeholders visualize end-to-end support for the use cases across different systems. Interoperability principles should frame the analysis, with concrete documentation of which interoperability principles need to apply to specific points in the processes, for example to be able to combine data from multiple sources or ensure privacy when data crosses between systems.

New wrap-around supports will be needed, and many state supports can be adapted and evolved to achieve LER goals. For example, existing career navigation help and educational opportunity exploration can be enhanced with the additional data LERs provide. LERs also create new opportunities for individual agency, for example helping people understand their own skills and the value of their own credentials in learning and career pathways.

All of these different types of inventory and analysis, in the context of clearly defined use cases, stories, and goals, will facilitate gap analysis that grounds the next steps and deliverables in one or more action plans.

Resources for analyzing

(See also resources above)

- Goals and initiatives:
 - Inventory related initiatives
 - Define LER goals aligned to state goals and initiatives
- Credential, skill, and job data inventory and analysis:
 - Define needs and inventory existing
 - CTDL Benchmark Data Models (Credential Engine)
 - o <u>CTDL Handbook</u> (Credential Engine)
 - Credentials
 - Skills
 - Iobs
 - Enterprise Data Strategy (U.S. Department of Labor)
 - Gap analysis of what's needed to implement use cases and achieve goals
- Processes and technologies inventory and analysis:
 - o Define needs and inventory existing
 - Interoperability for Verifiable Learning and Employment Records
 - Gap analysis of what's needed to implement use cases and achieve goals

- Wrap-around supports inventory and analysis:
 - Define needs and inventory existing
 - <u>Career Coaching Resources</u> (Markle)
 - Gap analysis of what's needed to implement use cases and achieve goals
- Action plan:
 - Planning guide

Implement

Implement New or Improved Policy, Initiatives, Data, and Technologies

- Execute on the action plan
- Publish and make transparent and actionable all related credential, skill, and employment data
- Implement or improve related processes and technologies
- Establish effective and equitable wrap-around supports

Delivering rich, timely, accurate, and reliable information about learning and careers into the hands of learners, workers, educators, employers, policymakers, and other stakeholders is the vital "last mile" for LERs that empower effective decision making. Systems, processes, and supports need to be implemented to meet LER goals. A well designed action plan based on concrete use cases will lay out the steps.

Thanks to state leadership in related initiatives, processes that have been siloed and data that has historically been held in data warehouses and are being turned into actionable pathways that connect learning and careers. Linked open data is helping policymakers, practitioners, and opportunity seekers make more informed decisions about pathways to success. Publishing and making transparent credential, skill, and job data needed for LER use cases is a continuation and expansion of work already underway in most states. CTDL and the Credential Registry offer a shared language and trusted space to be able to combine information from multiple sources to provide meaning and context for LERs.

Connecting credential, skill, and employment data to other data sets will expand the value of LERs and related processes. For example, ensuring that financial assistance and other supports, quality assurance, employment outcomes, and labor market projections utilize linked open data will enable more efficient real-time navigation along learning and career pathways.

Implementing these valuable data connections to support LER use cases will involve enhancing, supplementing, and in some cases replacing current systems and processes. Keeping an eye on end-to-end support for prioritized use cases can guide what systems need to be interoperable for different steps of LER development, issuing, collecting, and sharing.

Wrap-around supports need to be in place for every step of LER rollout, scaling, and sustainability. Implementing these supports and using inclusive and equitable design principles to ensure LERs

actually meet people's needs are just as important as technology implementation. LERs are valuable only to the extent they actually improve individual agency and enable equitable access to opportunities.

All of these different aspects of implementation, guided by well-defined use cases, should successfully connect LER goals to other state initiatives and support sustainability.

Resources for implementing

(See also resources above)

- Action plan:
 - Planning guide
- Credential, skill, and job data publishing:
 - o <u>Credential Registry Handbook</u> (Credential Engine)
- Processes and technologies implementation:

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• Wrap-around supports implementation:

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Sustain

Sustain through Enduring Commitment

- Ensure sustainability through legislative, agency, and institutional policies that continuously improve LER processes, data, and technologies
- Establish processes for ongoing improvements
- Commit to durable infrastructure for enduring LER value

Leadership is critical to building a vision for change. It is also critical for ensuring that quality implementation of new ideas creates sustainability for the new systems and processes. State policymakers are vital to ensuring that LERs become a core element of their education and workforce development strategies for the long term.

Policy can ensure that the work to support LER ecosystems is consistent and lasting. The commitment to LER systems and processes and the transparent data that underpins them needs to be embedded in policy and practice across P-20W systems to ensure sustainability, alignment, and impact. The value of linked open data about credentials, skills, and jobs will only grow as more LERs support larger and richer ecosystems contributing to economic growth.

Policies are important, and quality implementation across systems and the state is essential. Ongoing improvements in LERs involve not only technology evolution, but also related changes in processes and staffing. There must be the necessary investments in cross-agency collaboration and governance; staff capacity and professional development; business process innovation; maintenance and upgrading of technology, and standardizing and updating vendor MOUs to make LERs and data transparency standard, regular, and expected practice.

Meaningful data for LERs should be a stated goal of all data management systems and vendors, and institutions, systems, and agencies should develop and implement processes that prioritize this. Practitioners should be trained in the best practice uses of linked open data to improve their operations and performance. Professional development should include training in privacy, equity, and human-centered practices.

The marketplace of providers, offerings, and platforms will continue to change. The credentials and skills needed by employers will continue to evolve. New use cases to address these needs will make the steps in this Action Guide a recurring cycle. But while specific needs will evolve, durable core infrastructure and portability of LERs over time must be a key consideration for the enduring value of learning and employment records that empower people with an understanding of their own skills and achievements.

Resources for sustaining

(See also resources above)

- Policy:
 - Creating An Impact With Credential Quality And Transparency: A State Policy Toolkit (National Skills Coalition)
 - Policy Actions section below
 - o Policy Briefs (Credential Engine)
- Ongoing improvements:
 - Planning guide
- Infrastructure:
 - Guidance Signaling Expectations for Credential Transparency Sample Language (Credential Engine)

Stakeholders and Roles

Leadership matters. This truism is especially applicable when states are trying to act quickly and when there are many efforts, agendas, and players in the mix. Below are the leadership roles governors, agency chiefs, and legislators can play to leverage the power of learning and employment records (LERs) and data transparency to support their broader workforce development strategies and reach their goals. All of these leaders are critical to making equitable LERs a reality in your state.

Governors:

 Create a strategic vision for aligning education and workforce systems that include labor market information grounded in credential, skill, and job transparency and part of a broader P-20W data ecosystem

- Issue Executive Orders mandating the commitment to credential, skill, and job transparency for LERs through the use of linked open data, CTDL, and the Credential Registry
- Highlight the value and importance of LERs in State of the States and other important strategy-setting speeches
- Appoint leadership to create and follow clear objectives in the development and implementation of an LER initiative
- Build upon and utilize governance bodies, such as the P-20 Council, that are focused on learner lifespan issues to ground their work in credential, skill, and job transparency (adopt the CTDL, integrate credentials into P-20W dashboards, publish all credentials, skills, and jobs in the Registry)
- Hold agencies accountable for coordinating to integrate the CTDL into all education and workforce programs and the LERs issued in those programs

Legislators:

- Allocate funding to support statewide adoption of LERs linked to CTDL data in the Registry
- Mandate the use of CTDL to define any LER credentials issued in the state
- Allocate funds to provide ongoing support for the state's P-20W data system
- Set or require a state goal or target for attainment of credentials of value
- Define high-value credentials using rigorous skill, demand, and wage thresholds
- Incentivize LER initiatives
- Develop protocols to provide academic credit for non-academic credentials

Agency Leadership:

- Use the CTDL to describe every credential (whether granted by a K-12, postsecondary accredited institution, or a non-accredited training provider) to promote transparency, analysis, and comparability
- Ensure that every credential, skill, and job is publicly cataloged in the Credential Registry
- Require information about credentials and skills be part of program approval and program review processes
- Create tools, resources, and communication measures to ensure opportunity seekers, education/training providers, and employers are able to access and use the information about credentials, skills, and jobs, including indicators of their quality, found in the Registry and included in LERs

Business Leaders and Employers:

- Commit to using the CTDL when describing the credentials and skills necessary for jobs
- Signal which credentials and skills are required or recommended for jobs in the Credential Registry
- Work together with state programs to develop and communicate LER use cases important to the business community
- Utilize Registry data in LERs in talent acquisition and hiring workflows

Education and Training Providers:

- Commit to using the CTDL when describing the credentials and skills offered
- Publish all credentials and skills in the Credential Registry
- Utilize Registry data in LERs in enrollment and transfer processes
- Include CTDL in all LERs issued

Policymaker Actions

Work with state leaders to understand the challenges of delivering credentials of value and quality in your state and learn how learning and employment records (LERs) and linked open data can help address those needs.

Agencies overseeing K-12, workforce, higher education, licensing, apprenticeships, and other credentials and their related skills and jobs can identify and report on how LERs would improve services and value to stakeholders.

Incent state agencies, training and education providers, employers, and others to make information on all credentials, skills, and jobs in the state accessible through linked open data using a common language and ask all agencies focusing on supporting the development of human capital should to identify all data elements needed to support state LER goals.

Incorporate common and comprehensive data around credentials and skills into the data systems of early childhood, K-12, postsecondary, and workforce, and ensure that this information can be securely linked and shared to meet education and workforce goals. Ensure that quality indicators are accessible to the public by publishing them in CTDL.

Create a census of all credentials available to the residents of the state to be identified, cataloged, and reported by type, provider, and type of provider, with additional data important to the state LER goals, using linked open data and a common schema.

Require that information about all credentials and skills delivered, issued, funded, authorized, overseen, or governed by the state be made publicly accessible through the use of linked open data formats that support full transparency and interoperability, such as through the use of CTDL.

Utilize linked open data and unique identifiers of credentials, skills, and jobs to ensure data can easily be linked to other essential data.

State agencies should use Registry data in user-facing tools and portals to promote comparable information that can be linked to LERs.

Agencies can develop language to be used in RFPs that require vendors to utilize the CTDL and the Registry where appropriate.

Consider and implement policies and legislation that provide for enduring credential and skill transparency as data to be included in LERs.

Include funding for LER related activities in budgets for state agencies and programs.

History and Context for this Action Guide

This Action Guide is based on Credential Engine's State Roadmap and Action Guide for Transparency. Inspired by the Data Quality Campaign's essential elements of Statewide Longitudinal Data Systems and associated roadmaps, Credential Engine's Roadmap was designed to help states take action towards credential data transparency. Credential Engine developed the Roadmap, associated resources, and other policy briefs in collaboration with its **State Policy** <u>Partners</u> and with input from state agencies, systems, and other stakeholders.

Credential Engine's State Policy Partnership represents expertise and collaboration from seven state leadership organizations and five workforce, education and data advocacy/technical assistance experts who came together to build awareness, understanding, and demand for how policy can integrate credential transparency into education and workforce development state strategies. Their goals for the Roadmap included:

- Build awareness among state policymakers around the importance of credential transparency to their own state workforce and education goals and strategies;
- Elevate a common language about credentials for use in state policy;
- Increase demand among policymakers for credential transparency; and
- Provide specific actions policymakers can consider using to support integrating credential transparency into their larger human capital development efforts.

Ten steps in the Roadmap each include strategies that states can pursue, specific actions they can take, including policy actions, and examples from states' work on the ground. The associated toolkit organizes resources related to each step of the Roadmap. Credential Engine's state and regional partners have all used various aspects of the Roadmap to direct and implement their work. Each state uses different resources from the toolkit to meet their needs, and Credential Engine works with each state partner to identify needs and goals as states implement these strategies. For example, Texas approached step 5 - "inventory all credentials in your jurisdiction" - by reviewing all relevant data sources to understand the breadth of credentials available in the state and to inform their workflows for publishing to the Credential Registry. Connecticut passed legislation that is a

strong commitment to step 9 - "Ensure sustainability of credential transparency through legislative, agency, and institution policies."

Credential Engine's website includes <u>success stories</u> that demonstrate data transparency progress in states. We have also developed a self-assessment tool for states to evaluate their own progress on each step of the Roadmap, which can be used to share promising practices as well as determine areas of need. The toolkit, resources, and success stories are all continuously evolving to meet states' needs.

Data transparency is an essential foundation for interoperable, meaningful, human- and machine-actionable LERs. In fact, digital credentials in general and more recently LERs specifically are a high priority use case for many states using CTDL and publishing to the Registry. Therefore we have adapted this widely and successfully used Roadmap to provide this companion Learning and Employment Record Action Guide. As with the Roadmap, Credential Engine and our partners will provide associated LER resources that will evolve to meet states' needs.

