

NICE Webinar Series

NATIONAL INITIATIVE FOR CYBERSECURITY EDUCATION

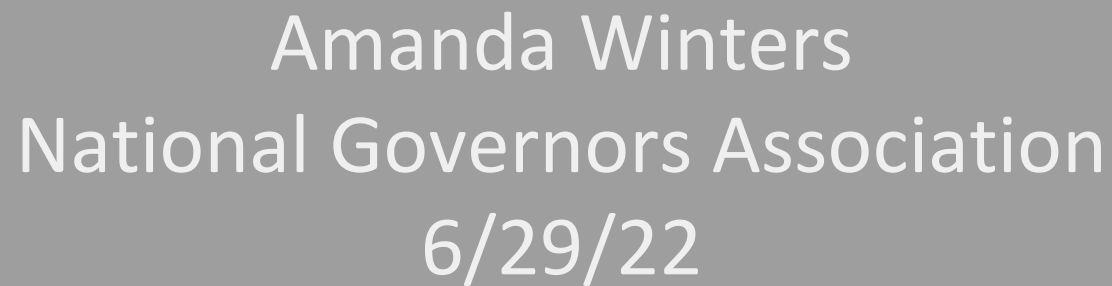


Creating the Infrastructure Needed for Scalable Learning and Employment Records

June 29, 2022



Why do we care about LER's?: Exploring State Efforts to Build Learning and Employment Records



Amanda Winters
National Governors Association
6/29/22

The National Governors Association



About NGA

Founded in 1908, the National Governors Association is the voice of the nation's governors. Our members are the governors of the 55 states, territories, and commonwealths. Though our members come from across the political spectrum, we're boldly nonpartisan.

NGA Center for Best Practices

The NGA Center is the technical assistance and consultative arm of the organization. The Center helps state leaders develop and implement innovative solutions to public policy challenges.



Exploring the “WHY” of skills/LER’s

What drew us to this topic?

Lifelong Learning

Data Security/privacy

Shifting Credential Landscape

Cross-agency alignment efforts

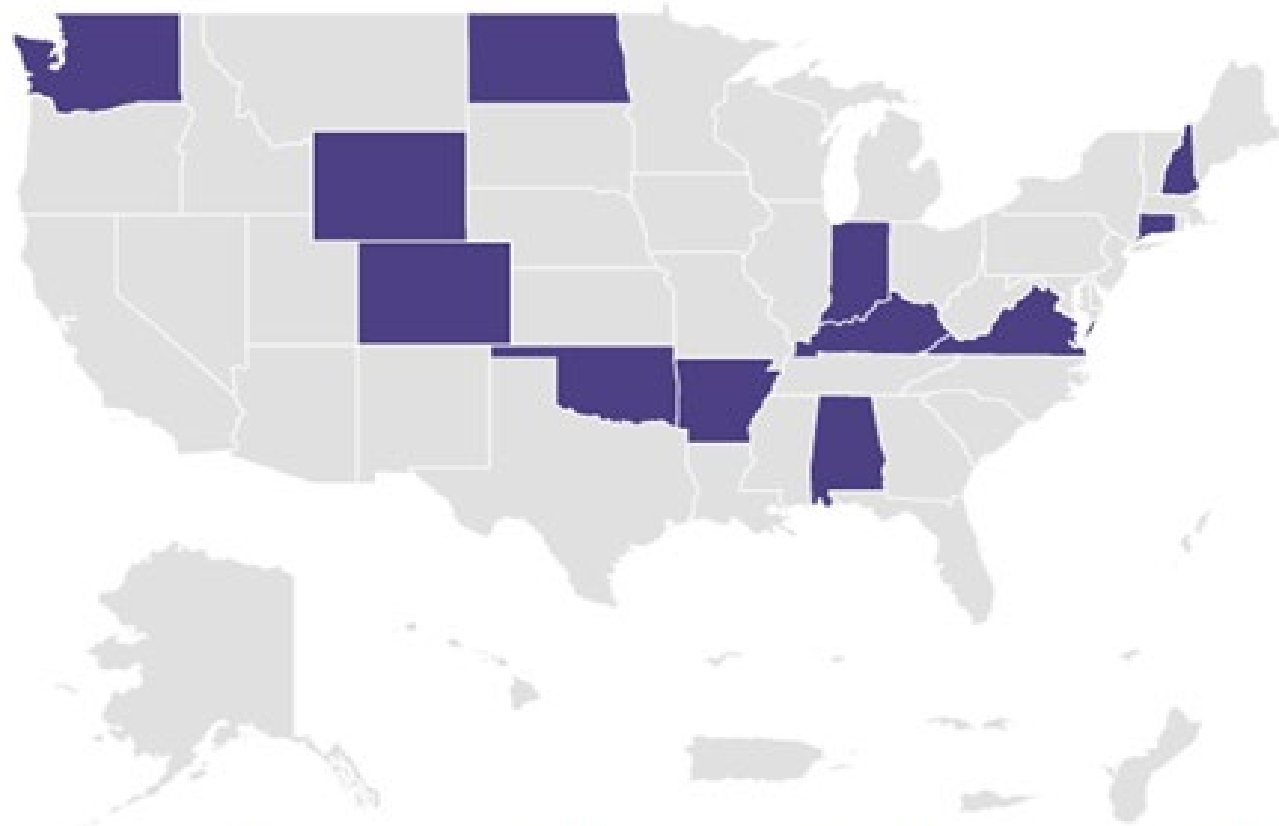
Meeting industry needs/Connecting to employers/Skills gap

Understanding the burgeoning ed tech space



NGA Skills-Driven States

Community Of Practice – Participating States



Alabama, Arkansas, Colorado, Connecticut, Indiana, Kentucky, New Hampshire, North Dakota, Oklahoma, Virginia, Washington, Wyoming

National LER Advisory Council Leadership Board

- The Brookings Institution
- Business Roundtable
- Competency Based Education Network
- Credential Engine
- Digital Promise
- Goodwill
- National Association of Workforce Boards
- Markle Foundation
- US Chamber of Commerce Foundation
- The Society for Human Resource Management



“A learning and employment record is a digital record of learning and work that can be linked to an individual and combined with other digital records for use in pursuing educational and employment opportunities. An LER can document learning wherever it occurs, including at the workplace or through an education experience, credentialing, or military training. It can also include information about employment history and earnings.”

Starting Point: Policy Connections

*Taking a step back from
Tech*

*States are further along
than you might realize*

**Technology is outpacing the policy
Need to Explore the WHY and not just the
HOW?**

Education/Workforce policy examples

Career pathways

Stackable credentials

Industry-recognized credentials

Non-degree credentials

Technology-Related initiative examples

Supply/demand dashboards

Workforce/job boards

CTDL/Credential data

Stakeholder Engagement connections

Skills-based hiring

Wrap-around services

Starting Point: Opportunities to Innovate

Badges, Certificates, Diplomas, Licenses, Micro-Credentials

Credentials leading to state licensure

Stackable career pathways

Public and private education/training providers

Data Systems

Learners/workers

Supply/demand

Need/wage levels/outcomes

Interoperability

Technology

Security/privacy/governance

AI/Digital wallets

State Examples

Connecticut- Legislation Requires the workforce agency, in consultation with other agencies, to establish standards to designate certain credentials as "credentials of value".

Maryland SB 317 (2017) directed the State Board of Education, Maryland Higher Education Commission, and the Governor's Workforce Development Board to develop statewide attainment goals for industry recognized credentials.

Indiana SB 198 (2017) includes attainment of an industry recognized certification or credential as part of the state's definition of a workforce-related program.

The Tennessee Talent Exchange was launched by the Tennessee Department of Labor and Workforce Development, Tennessee Grocers and Convenience Store Association, Tennessee Retail Association, and Hospitality TN. This online portal matches out-of-work Tennesseans with employers that have job openings, with plans to connect to postsecondary education and in-demand credentials.

Equity opportunities

Can these shifts lead to more equitable outcomes?

What are the challenges here?

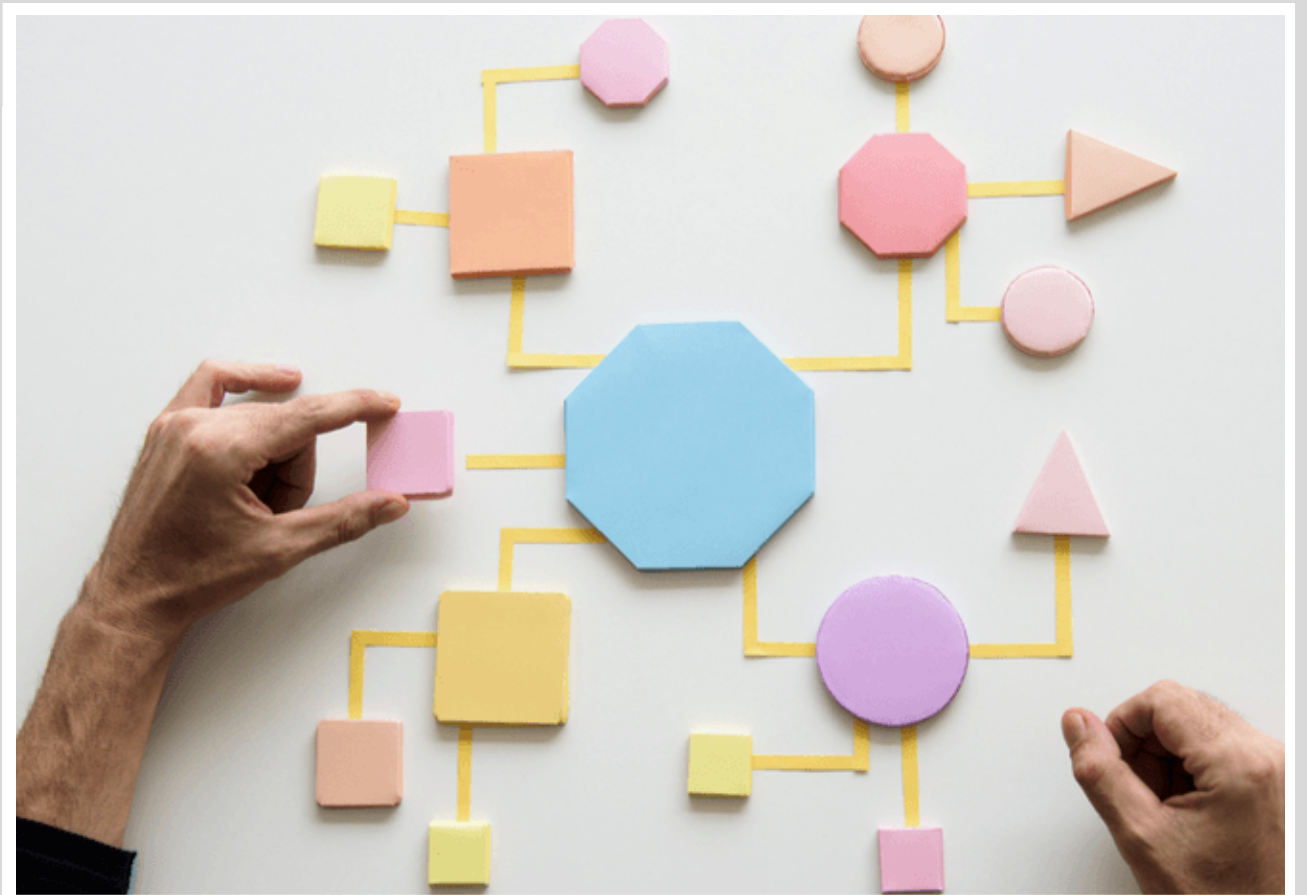
Access to Opportunity and Data

Pathways/Support

Connection to employers

Asset Mapping

- *Education/Workforce issues:*
 - Ex: Career pathways, transfer pathways, licensure/certification, non-degree credentials
- *Technology-related issues:*
 - Ex: Supply/demand dashboards, data sharing/MOU's, blockchain, data interoperability
- *Stakeholder engagement:*
 - Ex: Employer connection, upskilling/reskilling, skills-based hiring, Wrap-around services



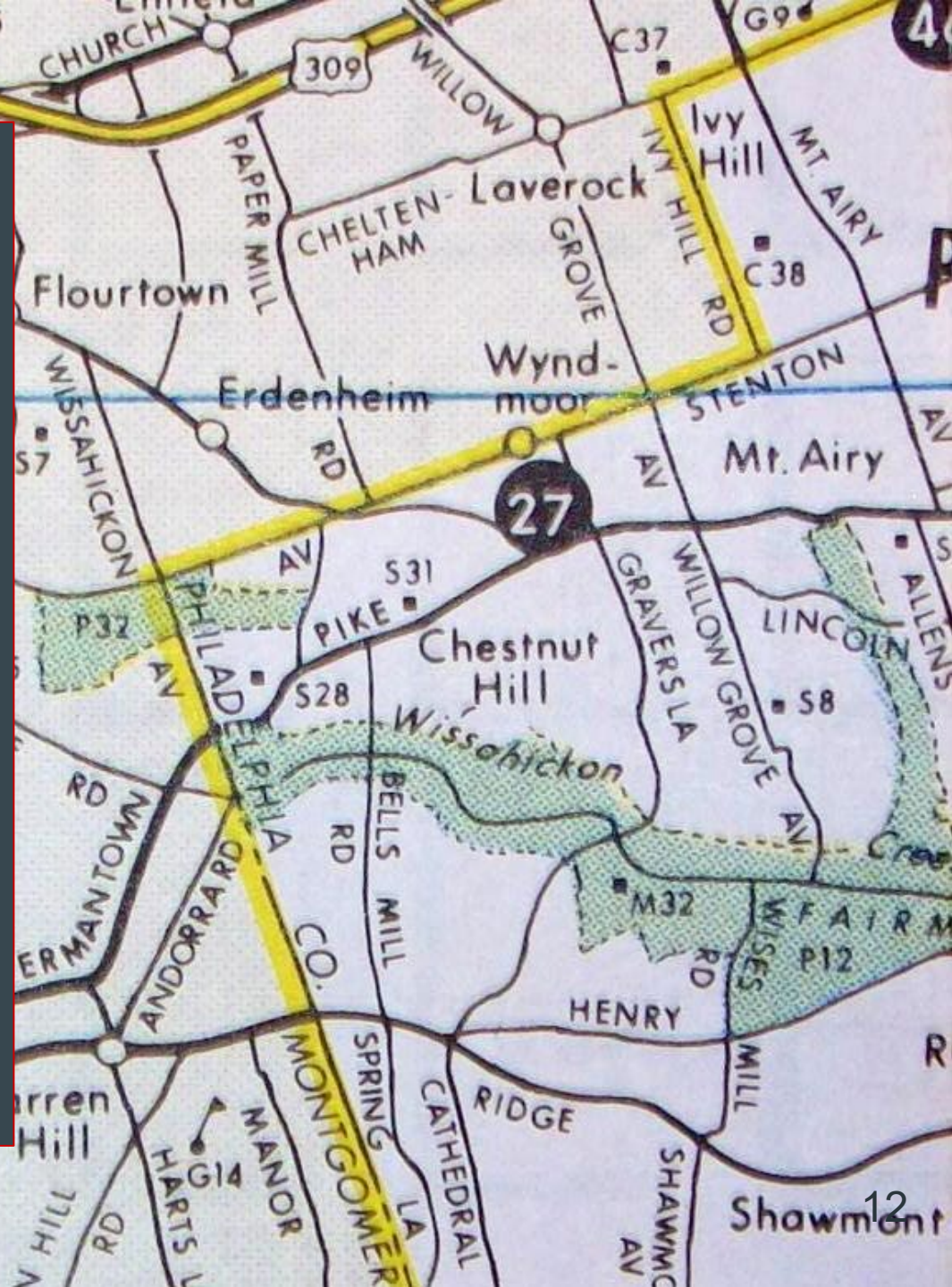
We are still exploring

More questions for consideration:

What assumptions are we making as we launch this work?

How can current systems shift to focus on skills?

How do we know that this is the right move?



Any questions?

THANK YOU

Q & A

Learning and Employment Records for Cybersecurity



We encourage reuse and remix of this resource with attribution

Credential Transparency Illuminates Paths to a Better Future



There are 1 million credentials offered in the U.S. With so many to choose from—and without widespread adoption of standards for comparing and evaluating them—people get lost and lose out on opportunity. Together, we and our partners are working to build a linked open data network that everyone can access for timely and trusted information about credentials.

CREDENTIALS

Credentials include diplomas, badges, certificates, licenses, apprenticeships, certifications, and degrees of all types and levels that represent key competencies signaling what a person knows or can do.

WHAT: TRANSPARENCY

Credential transparency makes essential information about credentials and competencies public, easily accessible, and actionable so that credentials can be better understood and pursued based on what it takes to earn them, what they represent, and the jobs they can lead to.

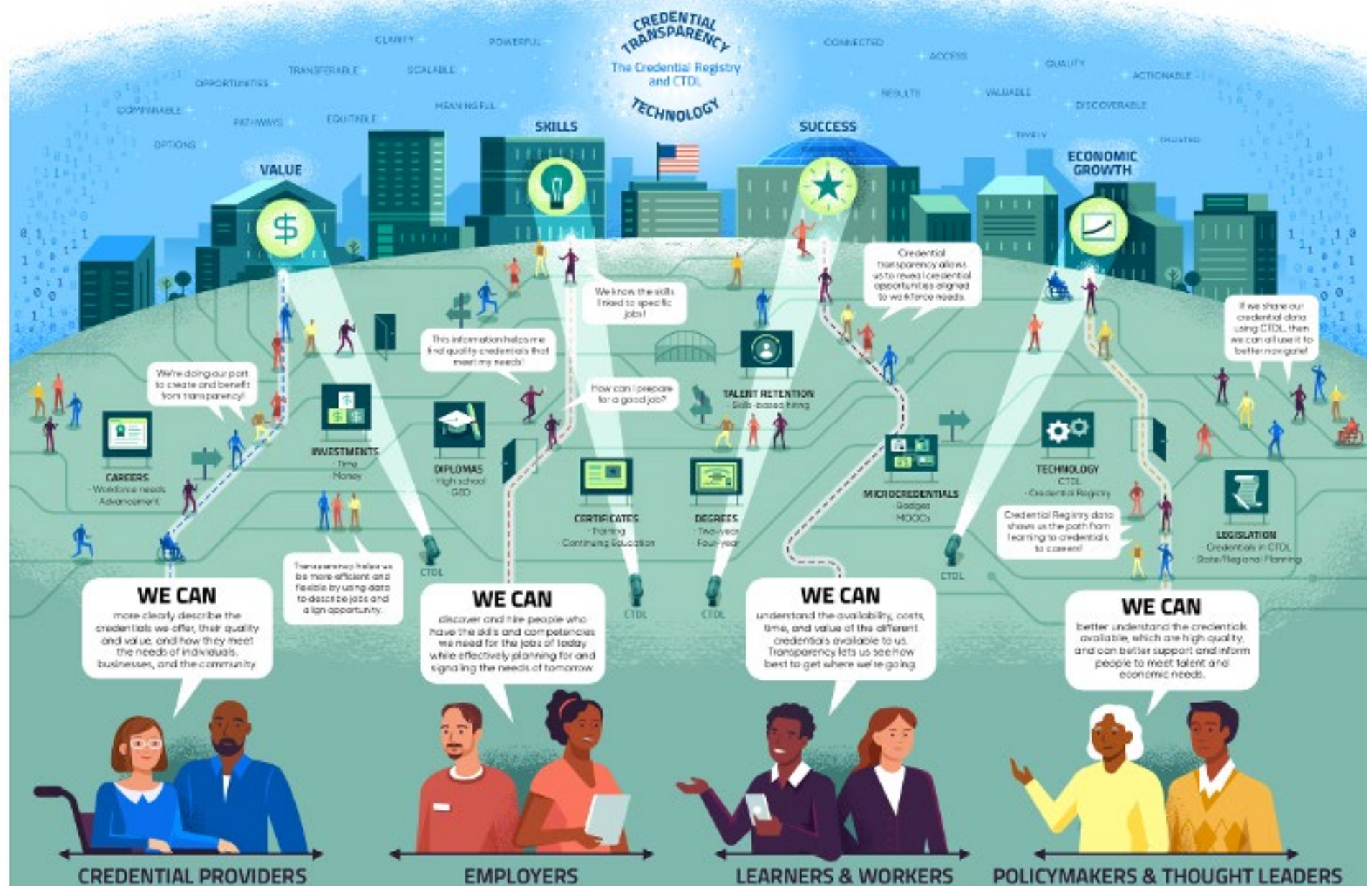
HOW: TECHNOLOGY

Credential transparency is made possible by technology. The **Credential Transparency Description Language (CTDL)** schema allows us to catalog, organize, and compare credentials and related information. Credential data from authoritative sources using CTDL is openly available in the **Credential Registry** for anyone, anytime, anywhere to search and compare credentials.

WHY: PATHWAYS

The easier it is to access and use comparable information about credentials, the easier it is for people to find the most effective paths to learn the right skills and find the best jobs. Credential transparency ensures equitable information about quality pathways to opportunities, makes those pathways discoverable, and empowers individuals along the way.

DESIGNED BY TREMENDOUSNESS
Learn more at www.tremendousness.com
© 2021 Credential Engine | www.credentialengine.org



CREDENTIAL PROVIDERS

EMPLOYERS

LEARNERS & WORKERS

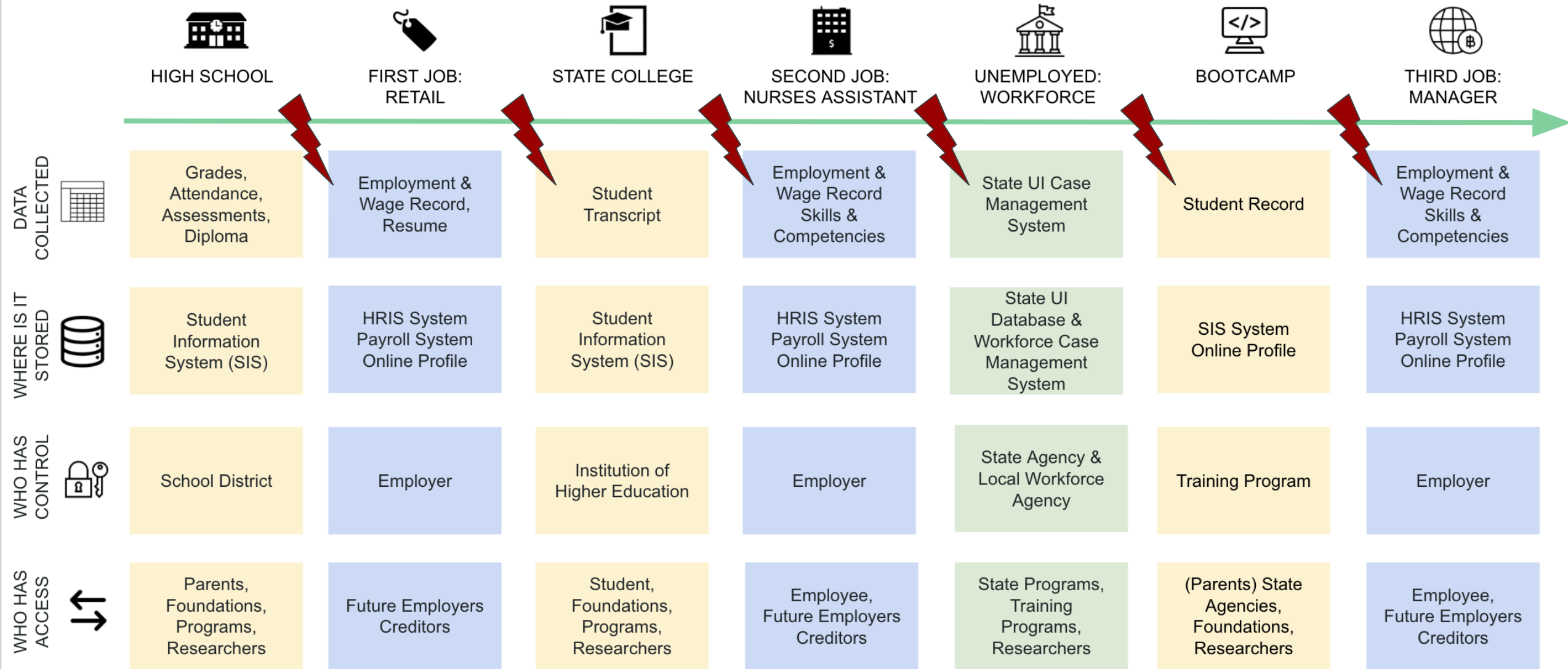
POLICYMAKERS & THOUGHT LEADERS

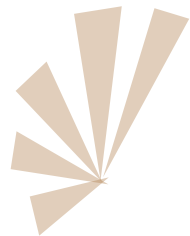
Learners are central to the ecosystem

Connecting credentials, skills, and jobs across lifelong learning and career opportunities



Disconnected learn and work records





Connected learn and work records

Credential,
skill, and job
transparency



Opportunities for people

Verifiable digital learning and employment records powered by the Credential Transparency Description Language (CTDL)

- Open
- Linked
- Trusted
- Accessible
- Useful
- Relevant



What are Learning and Employment Records (LERs)?

“A Learning and Employment Record (LER) is a digital record of learning and work that can be grouped together with other individual LERs for use in describing their abilities when pursuing education and employment opportunities. An LER can document learning wherever it occurs, including at the workplace or through an education experience, credentialing, or military training. It can also include information about employment history and earnings.” ([T3 LER hub](#))



- Digital records of learning and work combined from diverse sources
- Verifiable and secure
- Controlled and shareable by the individual
- Interoperable: transferable, meaningful, and machine-actionable across education and employment systems and processes

Global Open LER Standards

Standards support full transparency and interoperability of LERs:

W3C Verifiable Credentials and Wallets

- VCs for universal verification and delivery data
- VC wallets for collection and storage of LERs

Open Badges 3.0

- For content packaging of single records

Comprehensive Learner Records 2.0

- For content packaging of multiple records

Credential Transparency Description Language (CTDL)

- For meaningful Linked Open Data so that LERs can be usefully understood and applied

Open Badges: Meaningful Linked Open Data Inside

```

"type": "BadgeClass",
"id": "https://api.demo.badgr.com/public/badges/a2LJxZEAScmPZtoC0tqKA",
"@context": "https://w3id.org/openbadges/v2",
"name": "Evaluate Secure Cloud Data Solutions",
"image": {
  "id": "https://media.demo.badgr.com/uploads/badges/3ca90e26-c564-4e87-8731-97943b239e60.png"
},
"description": "The graduate evaluates secure cloud data solutions to safeguard data, personally identifiable information, and information resources.",
"issuer": "https://api.demo.badgr.com/public/issuers/oL3m8hzSgm8amDtqBdkg",
"tags": [
  "cloud computing security",
  "cloud security",
  "computer data storage",
  "data security",
  "digital data",
  "digital data storage",
  "encryption",
  "management",
  "resource analysis",
  "strategic planning",
  "personal information protection",
  "electronic documents act"
],
"alignment": [
  {
    "targetName": "Cloud Computing Security: Determine Cloud Access Controls",
    "targetUri": "https://staging.osmt.dev/api/skills/440fe46b-6bb3-48c2-b532-6d0a3040efc1",
    "targetDescription": "Determine user or group access control and remote access eligibility or privilege for cloud security.",
    "targetFramework": "OSMT"
  },
  {
    "targetName": "Cloud Computing Security: Basic Principles of Cloud Security",
    "targetUri": "https://staging.osmt.dev/api/skills/8e1f5bad-6787-4f93-9691-5a7f34229e52",
    "targetDescription": "Identify the basic principles of cloud security.",
    "targetFramework": "OSMT"
  },
  {
    "targetName": "Data Security: Resource Protection",
    "targetUri": "https://staging.osmt.dev/api/skills/2d9f8cf-2c06-40a4-a2c6-c0810a350b8f",
    "targetDescription": "Protect resources from unauthorized viewing or use by closing windows, minimizing windows, or turning monitors off.",
    "targetFramework": "OSMT"
  },
  {
    "targetName": "Digital Data: Storage Mechanisms",
    "targetUri": "https://staging.osmt.dev/api/skills/efbdd41e-4a59-4f0c-9de1-1a5efc4fa93e",
    "targetDescription": "Implement proper data storage mechanisms for specific types of files or data.",
    "targetFramework": "OSMT"
  },
  {
    "targetName": "Encryption: Data Access and Privacy",
    "targetUri": "https://staging.osmt.dev/api/skills/fc39aa71-45ad-41e4-a104-9f621b002b0e",
    "targetDescription": "Define the requirements for ongoing data access and privacy.",
    "targetFramework": "OSMT"
  }
],
"criteria": {
  "id": "https://www.wgu.edu/online-it-degrees/cybersecurity-information-assurance-bachelors-program.html",
  "narrative": "Successful completion of assessment activities supporting this competency and its underlying skills:\n\n**Cloud Computing Security: Determine Cloud Access Controls** - Determine user or group access control and remote access eligibility or privilege for cloud security.\n\n**Cloud Computing Security: Basic Principles of Cloud Security** - Identify the basic principles of cloud security.\n\n**Data Security: Resource Protection** - Protect resources from unauthorized viewing or use by closing windows, minimizing windows, or turning monitors off.\n\n**Digital Data: Storage Mechanisms** - Implement proper data storage mechanisms for specific types of files or data.\n\n**Encryption: Data Access and Privacy** - Define the requirements for ongoing data access and privacy.\n\n**Encryption: Data Decryption** - Decrypt retrieved data.\n\n**Encryption: Data Storage** - Encode data to then upload it to a storage location.\n\n**Management: Resource Analysis** - Determine resources needed to support an organization or process.\n\n**Management: Strategic Planning** - Develop a strategic plan for an organization or process.\n\n**Personal Information Protection And Electronic Documents Act: Compliance** - Implement policies and processes to ensure that organizations comply with the Personal Information Protection and Electronic Documents Act.\n\n**Personal Information Protection And Electronic Documents Act: Personal Information Protection And Electronic Documents Act Compliance** - Implement policies and processes to ensure that organizations comply with the Personal Information Protection and Electronic Documents Act."
}

```

Tags

Alignments to
CTDL in the
Credential
Registry

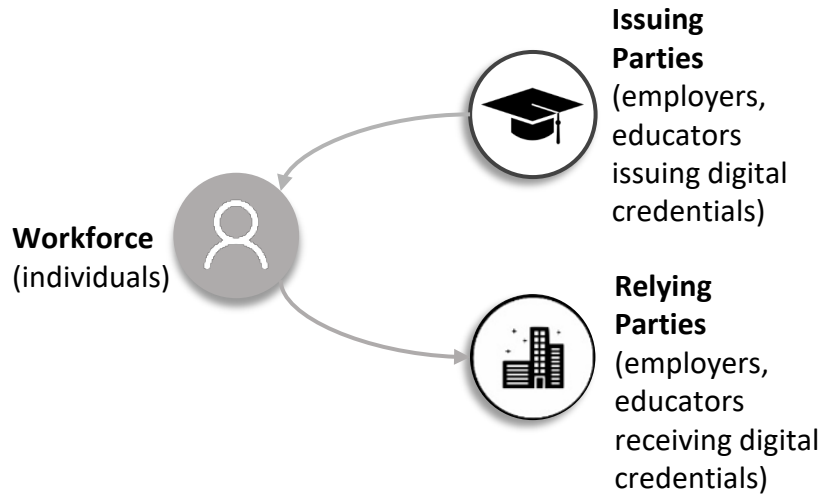
Earning
Criteria



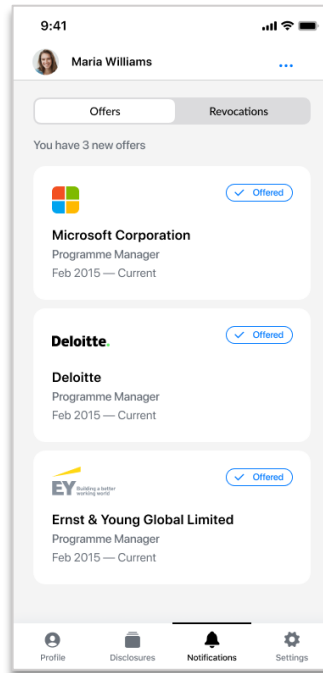
Verifiable Credentials owned and controlled by the individual

Making it simple for people and organizations to exchange verifiable, trusted career credentials.

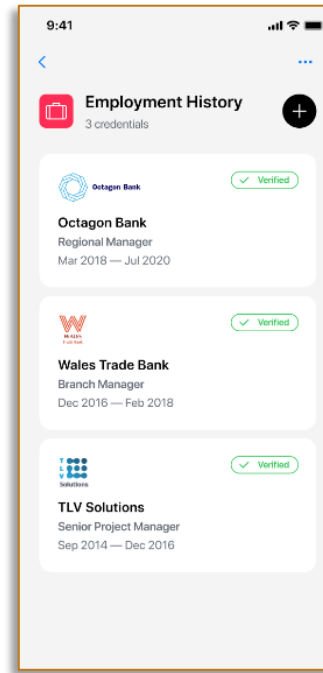
[Velocity Network Foundation](#)



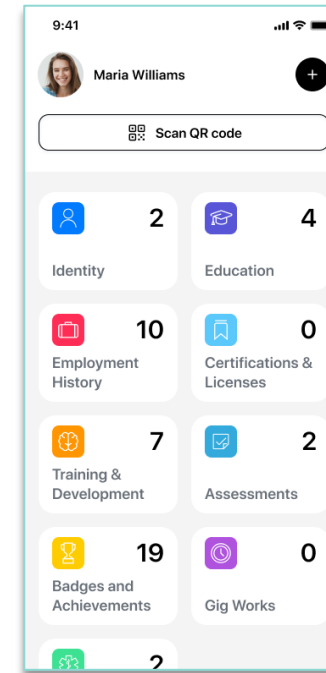
Claim digitally signed records from your work or college to build a verified career portfolio.



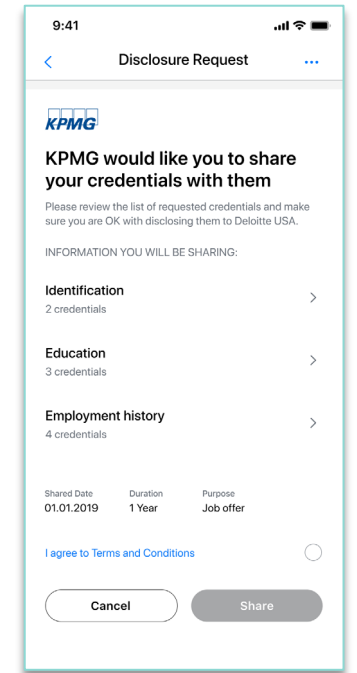
Stack proofs of your employment history, educational background, skills, and qualifications.



Organize all your career and education credentials. Store them privately.



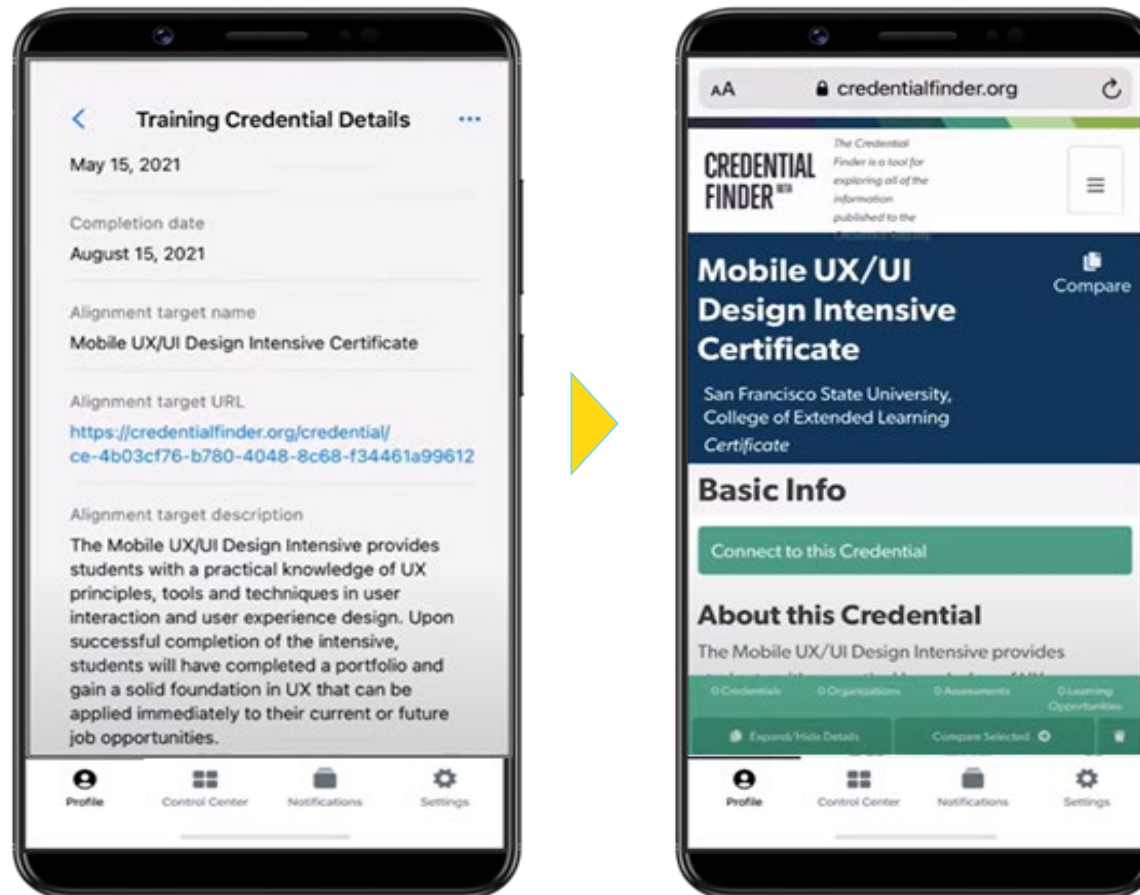
Control who you share your records with.



LERs include human- and machine-readable data in the Credential Transparency Description Language (CTDL)

People and systems need meaningful information to exchange in career credentials.

Verifiable Credentials include alignments to CTDL in the Credential Registry, which hosts rich Linked Open Data about credentials, skills, and pathways.

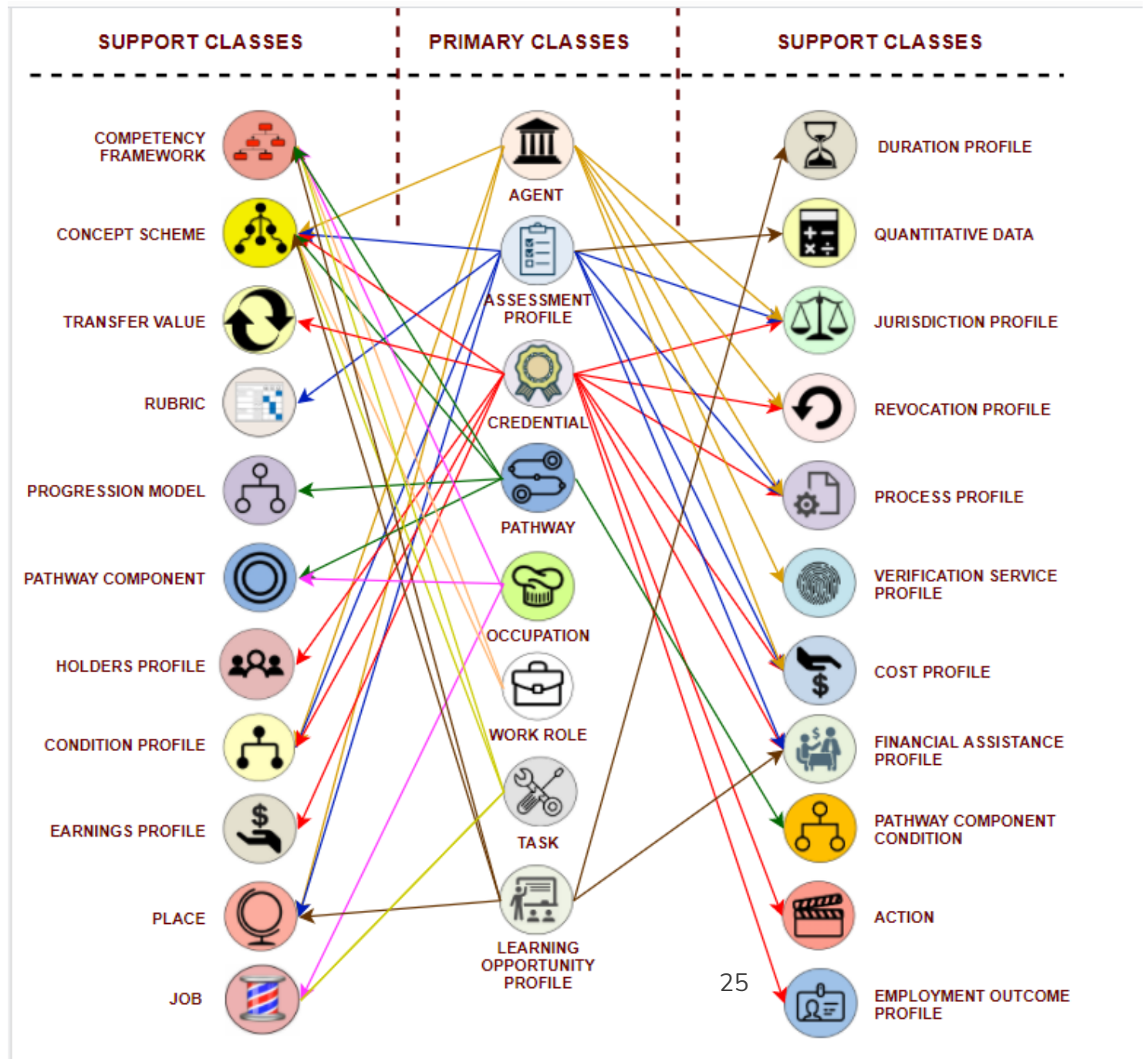


Credential Transparency Description Language (CTDL)

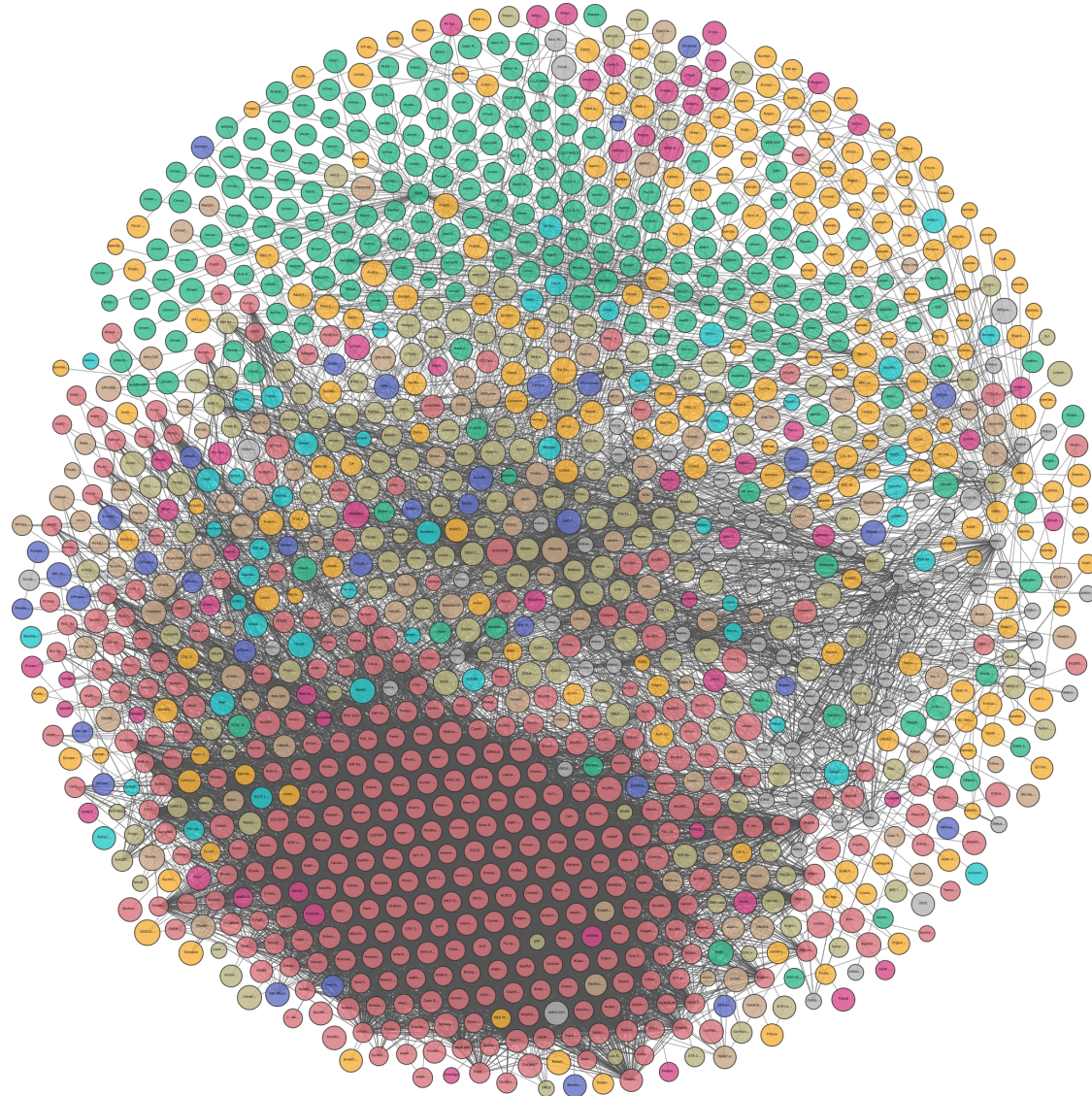
An open schema for transparent, meaningful information to build learn and work ecosystems.

- Credentials
- Knowledge, skills, and abilities
- Jobs and work roles
- Pathways
- and much more....

<https://credreg.net>



LERs connect to a world of Linked Open Data



Linked Open Data on the web for rich knowledge graphs that are human and machine readable

NEW MARKET SCAN

Walmart  org



Building a Skills-Based Talent Marketplace

Verifiable Credentials Wallets for
Learning and Employment

[JFF.org/digitalwallets](https://www.jff.org/digitalwallets)

PlugFest

- Companies who develop solutions implementing a standard meet and check that their implementation is compatible with the implementation of another solution developer
 - *Question: Can my credentials be portable across systems?*
- Demonstration, not standards certification
- Interoperability, not integration

PlugFest 1, June 2022 - Hello, world! I am a VC Wallet!

- The wallet can display a verifiable credential
- Credential shows important data about the issuer, how credential was earned, etc.
- Minimum data requirements are met

PlugFest 2, November 2022 - ... and I can hold a variety of credentials

- Credentials issued by another credential provider in the same wallet

PlugFest 3, 2023 - ... and they can be shared by the user

- Credentials from multiple providers can be combined and shared
- Export credentials to another wallet

LER Interoperability Principles and Classification



Draft Principles of Interoperability for LERs

- **Open Standards:** Require use of open data standards in the creation, exchange, and use of LERs including the competency/skill and employment data.
- **Trust:** Create a trusted environment for employers, individuals, and education providers for the collection, sharing and using of an individual's competency/skill, credential, and employment data as currency in the talent marketplace.
- **Privacy and Security:** Systems should protect privacy and security in all aspects of interoperability and the expectations of individuals about their privacy and security are respected.
- **Universal Access:** Every learner/worker should have access to and control of a digital wallet to store, manage, and curate their LERs. Wallets should use multiple open standards to support all kinds of LERs.
- **Support Multiple Levels of Achievements:** We must account for the range of learning and employment opportunities and support the capabilities of multiple systems to offer learning, validate skills, and produce LERs. Including accommodation of self assertions of competency/skill.
- **Alignment:** States, districts, federal agencies, employers, and others must be aligned in their support of the principles.
- **Market Demand:** The market, guided by public and private investment, should encourage innovation to meet evolving demands for interoperability.
- **Think globally, act locally:** LERs and digital wallets must function in local, regional, state, national and global talent marketplaces.

Inclusive Design Principles for Learning and Employment Records



Inclusive Design Principles for Learning and Employment Records



1. Individuals can share evidence of their **skills** and **competencies**, in addition to work history.



2. Demonstrate **learning progress over time**, not just one point in time, such as degree completion.



3. Individuals can **control** how their information is presented and shared.



4. Address **safety and privacy concerns**, especially for historically and systematically marginalized individuals.



5. Prioritize lifelong **access** and ease of **use**.

[Learning and Employment Records for Greater Equity](#)

Power your LERs with global open standards connecting equitable learning and career pathways

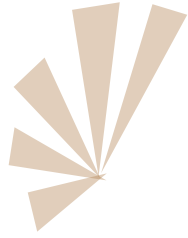
Standards support full transparency and interoperability of LERs:

W3C Verifiable Credentials and Wallets

Open Badges 3.0

Credential Transparency Description Language (CTDL)

1. Define requirements for information that makes LERs valuable.
2. Organize data about credentials, skills, jobs, and pathways from multiple sources.
3. Map the data to CTDL and include CTDL in LERs issued to individuals.
4. Issue and receive credentials to/from VC wallets.
5. Provide equitable on-ramps and supports leading to opportunities.
6. Ensure people have control over collecting and sharing their own LERs.



For More Information



Scott Cheney
Executive Director
scheney@credentialengine.org



Jeanne Kitchens
Chief Technology Services Officer
jkitchens@credentialengine.org



Deb Everhart
Chief Strategy Officer
deverhart@credentialengine.org



Credential
Engine™

Website: credentialengine.org

Email us: info@credentialengine.org

Technical Information: credreg.net

Credential Finder: credentialfinder.org



Find @CredEngine on Social Media

Q & A



<https://www.surveymonkey.com/r/JuneNiceWebinar>

Thank You for Joining Us!

Upcoming Webinar:

“Optimizing Your LinkedIn Profile for Your Cybersecurity Career”

When: Wednesday, July 20, 2022, 2:00PM – 3:00PM ET

Register: <https://go.usa.gov/xJFKt>

nist.gov/nice/webinars