

Skills-Based Hiring and Advancement: LERs, Resumes, and Related Data Standards



U.S. Chamber of Commerce
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HR SYSTEMS

Learning Content and Metadata

- [1EdTech Thin Common Cartridge / Common Cartridge](#)
- [IEEE Learning Object Metadata \(LOM\) 1484.12.1](#)
- [DCMI Learning Resource Metadata Initiative \(LRMI\)](#)
- [ADL cmi5 \(xAPI profile\)](#)
- [ADL/IEEE xAPI \(P9274.1\)](#)
- [MedBiquitous Healthcare Learning Object Metadata](#)
- [1EdTech Learning Tools Interoperability \(LTI\)](#)
- [1EdTech Content Packaging](#)
- [Credential Transparency Description Language \(CTDL\)](#)
- [Common Education Data Standards \(CEDS\)](#)
- [ISO SCORM](#)
- [HR Open xAPI*](#)
- [IEEE Learning Metadata P2881*](#)

Assessment

- Launching and Tracking
 - [1EdTech LTI](#)
 - [ISO SCORM](#)
 - [ADL cmi5 Test Suite](#)
 - [IEEE 9274 Series](#)
- Content
 - [1EdTech QTI](#)
 - [CEDS](#)
- Results Formats and Transcripts
 - [PESC Test Score](#)
 - [HR Open Assessment](#)
 - [CTDL](#)
 - [CEDS](#)
 - [A4L SIF \(K12\)](#)
 - [EdFi \(K12\)](#)
 - [1EdTech Assessment Results Profile](#)

Job Application, Screening, and Onboarding

- [HR Open Recruiting \(Candidate\)](#)
- [HR Open Screening](#)

Occupational Classifications

- [Dept of Labor O*NET](#)
- [European Skills, Competencies, & Occupations \(ESCO\)](#)
- [Standard Occupational Classification \(SOC\)](#)

Worker Record

- [Medbiquitous Healthcare Professional Profile](#)
- [HR Open Common \(Person\)](#)
- [W3C Citizenship Vocabulary*](#)
- Employee Record*

Interview Standards

- [HR Open Interview](#)



RESUME OR PROFILE

Resumes which are compatible with LERs will communicate authenticated and more detailed information. This resume or profile standard is the linchpin for connecting machine-actionable data about learning and employment to employer job opportunities.

- [HR Open Resume/CV*](#)

WORK OFFER

Job Posting Standards

- [HR Open Recruiting \(JDX & PositionOpening\)](#)
- [Schema.org JobPosting](#)

Job Posting Feedback Standards

- No standards, this is not yet common practice. Customer satisfaction widgets could be helpful here, possibly drawing on schema.org.

BIAS/QA

- Standards could be helpful for auditing outcomes of AI/analytics and HR processes

APPLICATION PROGRAMMING INTERFACES (APIs)

- [A4L SIF API](#) / Data Standards United (DSU) Standardized Infrastructure
- [OAGIS BOD](#)
- [HR Open "Open API"*](#)

IDENTITY STANDARDS

- Decentralized Identity Standards, e.g. [W3C DID](#)
- Authentication Standards: [OAuth 2.0](#), [Open ID Connect \(OIDC\)](#), [SAML](#), UMA

CREDENTIAL DESCRIPTION STANDARDS

- [Credential Transparency Description Language \(CTDL\) Suite](#)
- [Schema.org Educational or Occupational Credential](#)
- [European Digital Credentials for Learning \(EDC\)](#)

COMPETENCY (SKILLS) DEFINITIONS AND COMPETENCY STANDARDS

- [D2L Achievement Standard Network \(ASN\)](#)
- [Credential Transparency Description Language ASN \(CTDL-ASN\)](#)
- [1EdTech Competencies and Academic Standards Exchange \(CASE\)](#)
- [IEEE 1484.20.3 Standard Data Model for Sharable Competency Definitions](#)
- [ESCO](#)
- [Medbiquitous \(healthcare\)](#)
- [CEDS](#)
- [Open Skills Network Rich Skills Descriptor \(OSN RSD\)* \(content model\)](#)
- [Eduworks CaSS Schema*](#)

Generating Learning and Employment Records (LERs) and using them in skills-based hiring and advancement requires the use of data standards. The T3 Innovation Network is supporting the development and use of data standards and related technologies to empower learners and workers with data about their knowledge, skills, and abilities. This digital transformation will better connect learners and workers to employment opportunities and help bring about a more equitable talent marketplace.

DIGITAL WALLET

- [W3C Universal Wallet](#)
- [MIT DCC Learner Credential Wallet Spec](#)
- [EBSI Wallet Spec](#)

LEARNING AND EMPLOYMENT RECORDS (LERs)

LER and Payload Standards

- [W3C Verifiable Credential \(VC\)](#)
- [1EdTech Comprehensive Learner Record \(CLR\)](#)
- [1EdTech Open Badges \(OB\)](#)
- [Milgears \(military, de facto\)](#)
- [ADL & IEEE P2997 Enterprise Learner Record Data Model](#)
- [PESC College Transcript](#)
- [PESC High School Transcript](#)
- [MedBiquitous Educational Achievement \(healthcare\)](#)
- [European Learning Model \(ELM\)](#)
- HR Open Employee Record*
- W3C Linked Claims Verifiable Credential*

Verifiable Credential Protocols

- [W3C Credential Handler API \(CHAPI\)](#)
- [DIF DIDComm](#)
- [OIDF OIDC](#)
- [W3C Verifiable Presentation Request*](#)
- [W3C Verifiable Credentials API \(VC-API\)*](#)

LEGEND:

Categories marked with the gear icon would most likely benefit from additional standards development or more progress on existing standards. **Standards marked with an asterisk are in development (pre first version).** The second and further instances of the same standard on this page are listed by their acronyms.

HR SYSTEMS

HR software systems assist employers throughout the end-to-end skills based hiring and advancement process. They include human capital management systems (HCM) (comprehensive cloud-based platforms that integrate the management of people, business processes, and data), human resource information systems (HRIS) which typically focus more on employee data management, and recruiting and applicant tracking systems (ATS), an HR system offering that are used directly in communicating opportunities, recruiting potential candidates, and compiling, analyzing, and making recommendations on job candidates and applicants.

- **Learning Object Content and Metadata**
Organizes learning objects including opportunities, programs, resources, etc.
- **Assessment**
Covers the deployment of assessments, their content, and storing and sharing results.
- **Job Application & Screening**
Standardizes the information around searching for candidates, application processes, resume extraction/ingestion, and background checks.
- **Occupational Classifications**
Classifies datasets (i.e., jobs and skills) into standard occupations used across systems.
- **Worker Record**
Covers worker records internal to the employer. May be drawn upon to create LERs.
- **Interview Standards**
Defines communications that occur between the interviewing tool, the ATS/CRM, interviewer, and the candidate.

RESUME OR PROFILE

Refer to formal documents that describe an opportunity seeker. Resumes are similar to professional profiles although profiles are usually hosted by a provider. Resumes are also similar to more comprehensive curriculum vitae (CV) which are often used within Europe (e.g., Europass) and in more academic professional communities. Although resumes, related profiles, and CVs are usually electronic documents (e.g. Word, PDF), they are usually not provided as structured, machine-actionable data that can be easily processed and analyzed by employer systems without the use of application forms and parsing technologies and usually do not contain structured skills data of job candidates.

WORK OFFER

Include jobs, internships, apprenticeships, upskilling and reskilling training programs, professional development programs, stretch role assignments, experiential learning cohorts, and other experiences to accelerate career progression or pursue job opportunities communicated using a broad range of documents including formal job descriptions, job postings and skill profiles that describe job roles, responsibilities, requirements, and related job information.

- **Job Posting Standards**
Standards for structuring work offers.
- **Job Posting Feedback Standards**
These standards don’t exist yet but could provide a standard way to receive feedback to specific aspects of job postings published in job posting standards to improve their effectiveness over time.

IDENTITY STANDARDS

A digital identity is information about an entity used by computer systems to represent an external agent. That agent may be a person, organization, application, or device. Digital identity can be centralized (one identity per application) or decentralized, as with federated (one identity can be used across applications) or self-sovereign identity (identity controlled by the agent).

CREDENTIAL DESCRIPTION STANDARDS

For describing the characteristics of education and training credentials, including degrees, badges, certifications, and certificates.

COMPETENCY (SKILLS) DEFINITIONS AND COMPETENCY STANDARDS

Sets of logically-related skills and/or competencies. They may be organized as hierarchies/taxonomies (parent-child relationships) or ontologies (multidimensional relationships). They may be published openly or commercially by professional and industry organizations, education providers, government agencies, or employers and are a key data source. These standards can also support word collections or lists of skills that may be more loosely organized.

DIGITAL WALLET

LERs and other records are stored in digital wallets installed on personal devices or running as services on the internet. Digital wallets store and access digital assets, including credentials, personal information, and other records. Wallets are like personal safe deposit boxes that store records (which are like loose pieces of paper) and verifiable credentials (paper packaged in an envelope that makes it portable).

LEARNING AND EMPLOYMENT RECORDS (LERs)

Structured digital records describing attributes of learning and work that can be linked to an individual. They may be combined with other structured digital records to apply to further education or work opportunities. An LER can document learning wherever it occurs, including during employment, informal activities, or formal education experiences.

- **LER and Payload Standards**
The most secure (cryptographically signed) and interoperable form of LERs follow the W3C Verifiable Credential (VC) Data Model. Of published LER standards, Open Badges and CLRs have just become natively VC aligned, meaning they provide VC functionality without needing to be packaged into a VC “envelope”. Data stored in the other standards can be added to a VC as a payload inside of the VC envelope. Payloads which are not VC-compatible or wrapped in a VC envelope will likely be less portable between wallets, but we include them in the list of standards to illustrate the landscape.
- **Verifiable Credential Protocols**
Protocols and APIs for exchanging LERs. All of these are VC compliant.

Learn More

For more resources in this series, see t3networkhub.org

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