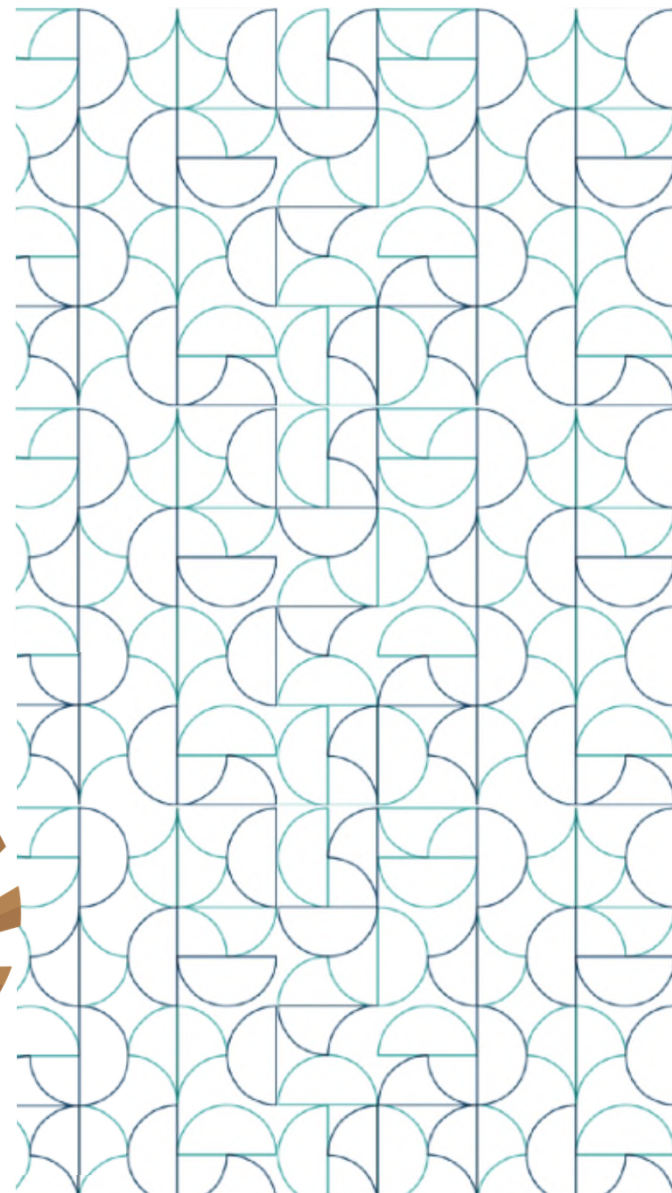
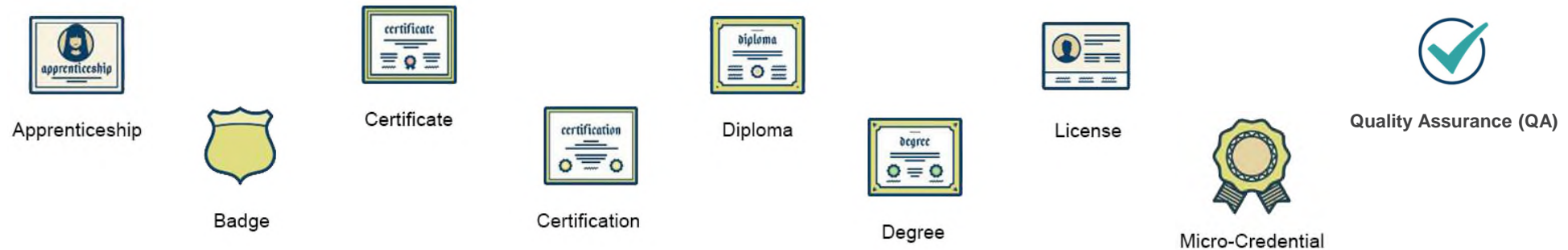


# Bringing Credential Transparency and Literacy to the Marketplace

| Scott Cheney & Jeff Grann October, 2018



# The Problem – Lack of Understanding for All Credentials

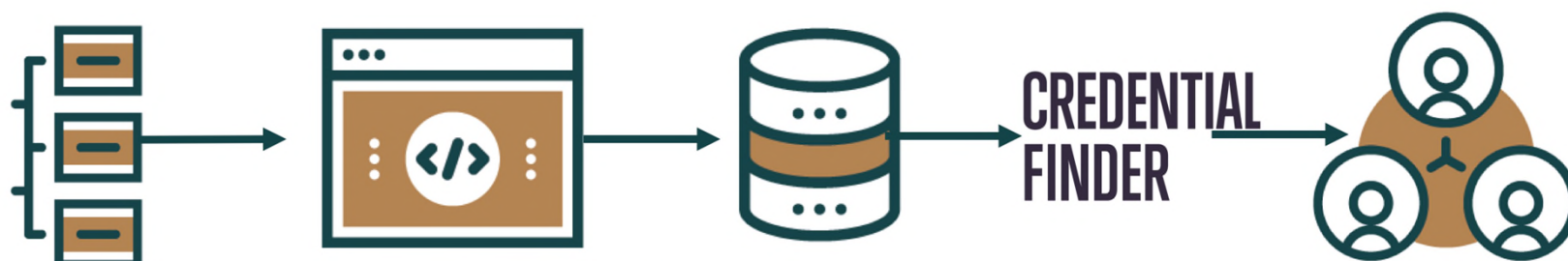


## The Marketplace of Credentials Is Confusing and Complex:

- Many different types of credentials with variation in content, quality and value.
- The market is expanding - over 330,000 confirmed in the U.S. alone.
- No common language to describe or compare credentials
- Misalignment between industry needs and educational offerings
- No mechanism for stacking credentials based on “competencies.”



# How We do it: Transparency Through Technology



**Credential Transparency Description Language (CTDL)** – Common language that describes key features of credentials, credentialing organizations, and quality assurance bodies.

*Common descriptors will allow for better apples-to-apples comparison between credentials.*

**Publishing** – After creating a user account, organizations use the API, Registry Publisher, bulk upload, or—in the future—harvest structured data to convert organization, credential and quality assurance information to the common language and publish to the registry.

*Organizations will have a suite of options to add information to the registry.*

**Credential Engine Registry** – houses information described by the common language and supports an open applications marketplace.

*Developers will create specialized applications for different types of users, like employers, military veterans, and students.*

**Credential Finder Prototype Application** – Basic search to view information in the registry.

*The public will use Credential Finder to see all information in the registry.*

**Community** – Receives technical assistance and other services to consume from and publish to the registry.

*Credentialing organizations, developers, and other users will have access to resources like best practices, user guides, and staff support.*



# A Common Language Captures & Structures Credential Data

<b><u>CREDENTIAL</u></b> <ul style="list-style-type: none"><li>• Type</li><li>• Description</li><li>• Competencies</li><li>• Owned/Offered By</li><li>• External Quality Assurance</li><li>• Renewal/Revocation</li><li>• Connected Credentials</li><li>• Jurisdiction</li></ul>	<b><u>ORGANIZATION</u></b> <ul style="list-style-type: none"><li>• Name / Parent Organization</li><li>• Type</li><li>• Description</li><li>• External Quality Assurance</li></ul>	<b><u>COST</u></b> <ul style="list-style-type: none"><li>• Price</li><li>• Cost Types</li><li>• Payment Information</li><li>• Residency</li></ul>
<b><u>ASSESSMENT</u></b> <ul style="list-style-type: none"><li>• Name</li><li>• Competencies</li><li>• Assessment Type</li><li>• Delivery Type</li><li>• Requirements, Duration, and Location</li></ul>	<b><u>LEARNING OPPORTUNITY</u></b> <ul style="list-style-type: none"><li>• Types</li><li>• Competencies</li><li>• Delivery</li><li>• Requirements, Duration, and Location</li></ul>	<b><u>IN DEVELOPMENT</u></b> <ul style="list-style-type: none"><li>• Labor Market Value</li><li>• Employer Requirements, Preferences, or Recognition</li><li>• Career Pathways</li><li>• Credential Holder Profiles</li><li>• Military-specific descriptors</li></ul>

*\*For CTDL's full vocabulary of 300+ terms, visit [www.credreg.net](http://www.credreg.net)*



Updates October 2018





## Current State Partnerships

- **Indiana** — The Indiana Commission for Higher Education has worked with Indiana's credential providers to publish 1,000+ healthcare credentials – and has plans to publish more from other key sectors.
- **New Jersey** – The New Jersey Department of Labor and Workforce Development is working to bring credential clarity and transparency to New Jersey as part of the state's effort to ensure that at least 65 percent of its workforce has at least one post-secondary credential by 2025.
- **Michigan** – The Talent Investment Agency will focus on publishing credentials related to healthcare, information technology and computer science, advanced manufacturing, business and other professional trades to support the Governor's Marshall Plan for Talent.
- **Kansas** – The Board of Regents will publish all active degrees, certificates, and short-term technical programs offered by the public postsecondary schools in the state to increase visibility and comparison across state lines.
- **Ohio** – The Department of Higher Education will focus on the information technology and cybersecurity sectors to reveal the labor market value of credential options, strengthen pathways, and inform policy.







# New England Board of Higher Education: *High Value Credentials for New England*



HVCNE will provide individuals, institutions, state policy leaders and employers the tools to:

- Develop a common language to describe credentials
- Evaluate and communicate the value of credentials
- Identify critical education and employment pipelines
- Understand the skills and competencies obtained in earning a credential

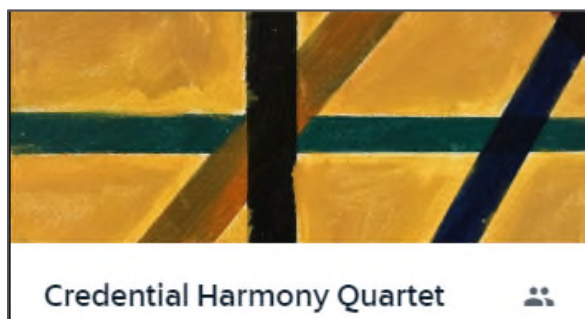
This project will initially focus on credentials from growth-oriented industry sectors including:

- Healthcare, life and bio-sciences, information technology (IT) and business and financial operations.

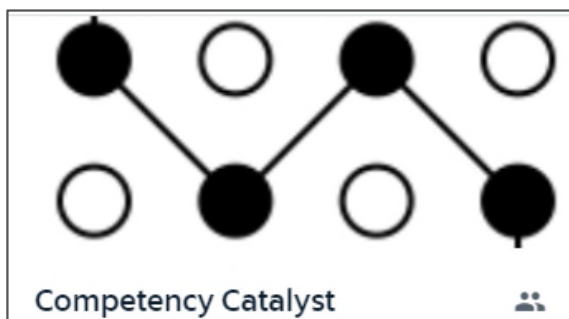




# USDOE Ecosystem Challenge



Credential Harmony Quartet



Competency Catalyst



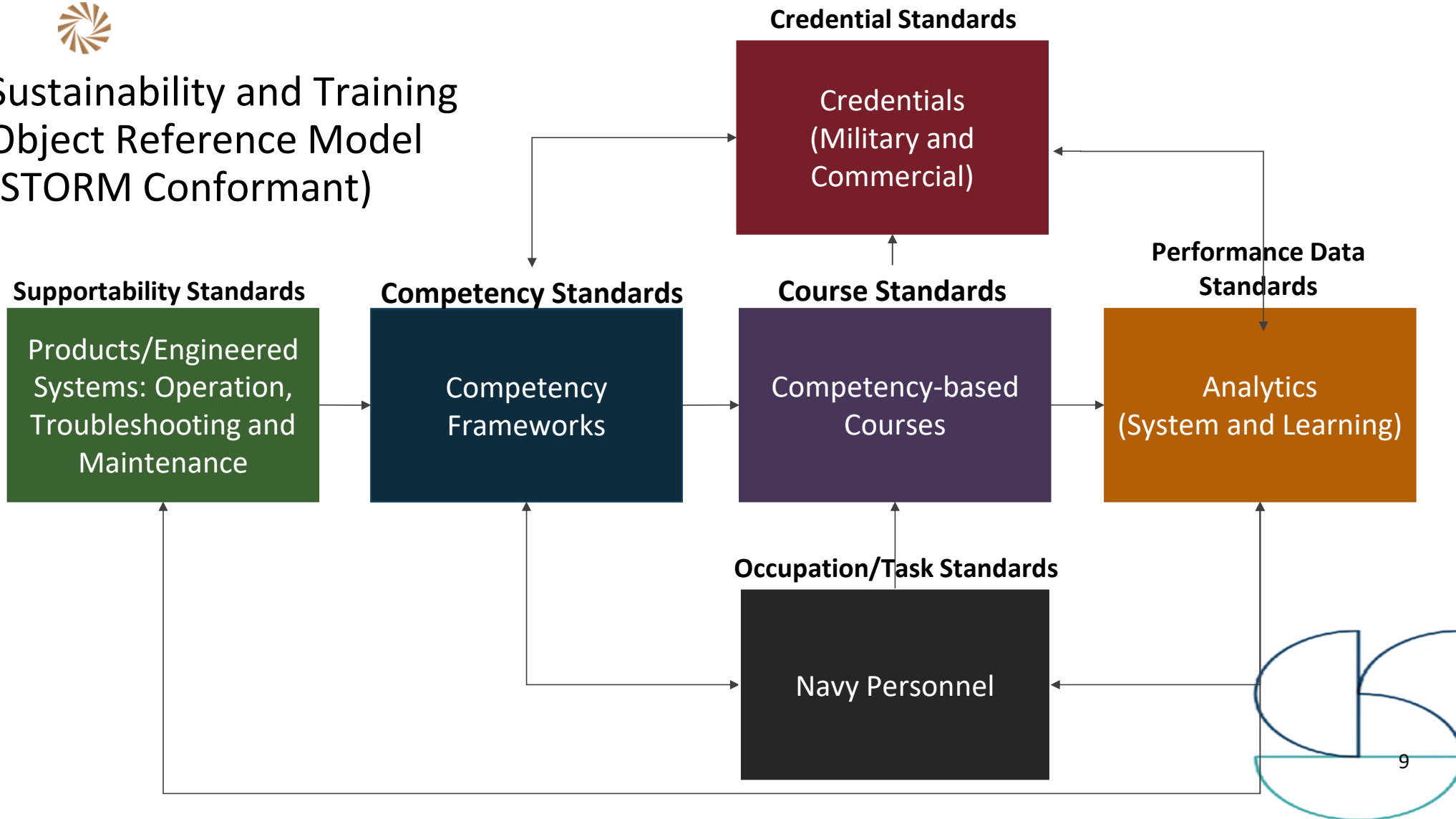
Transform the Credential Chain







# Sustainability and Training Object Reference Model (STORM Conformant)





## THE DEGREE QUALIFICATIONS PROFILE

A learning-centered framework  
for what college graduates should know  
and be able to do to earn the  
associate, bachelor's or master's degree



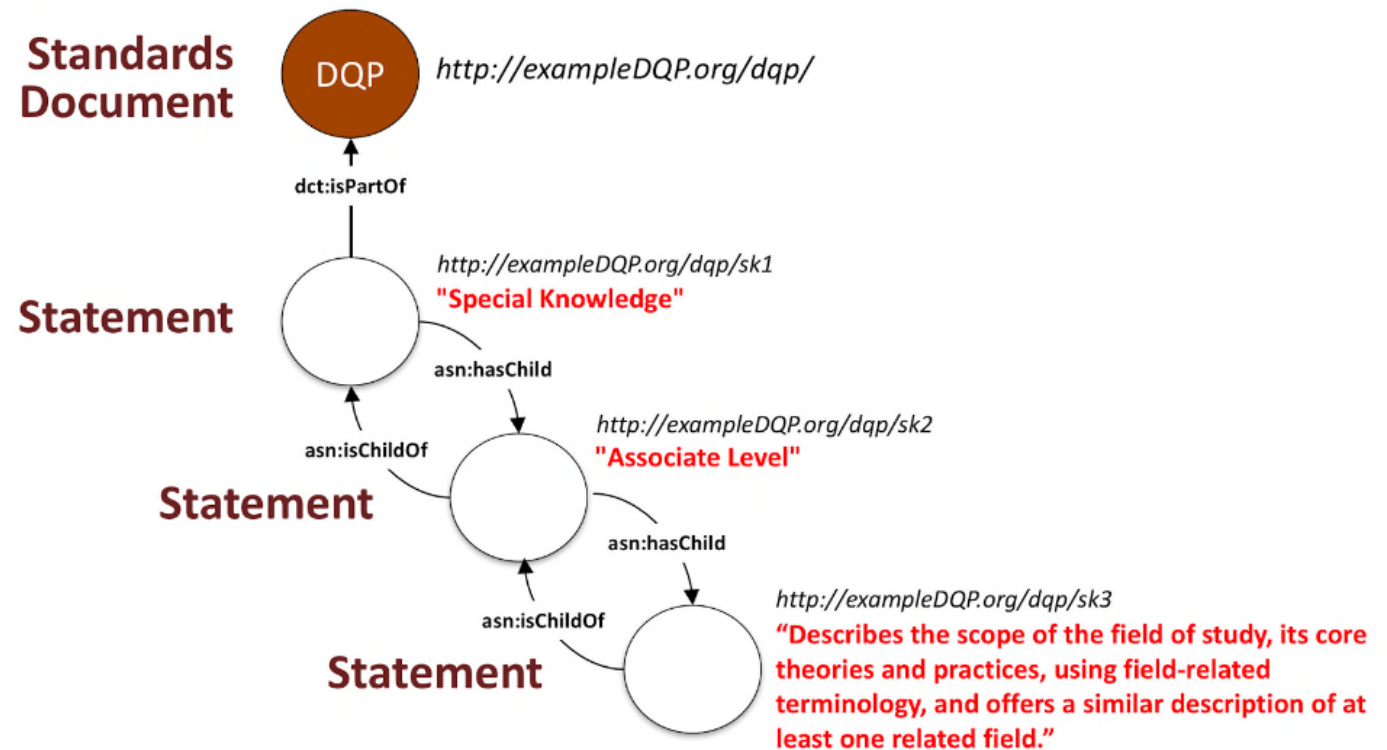


# Competency Frameworks

CTDL-ASN is made up of two fundamental entities:

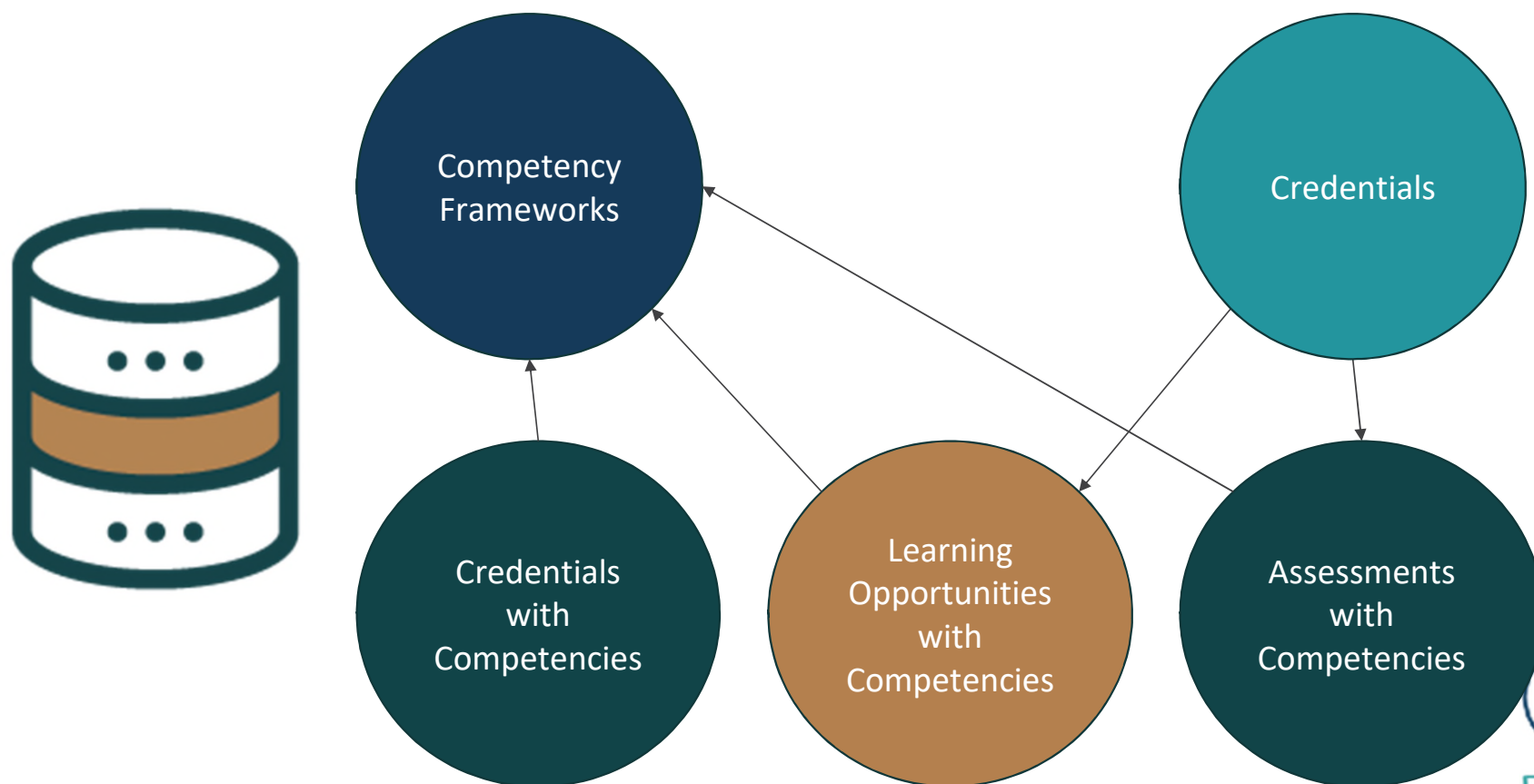
1. Standards Document—a competency framework as a whole, and
2. Statement—the individual assertions of knowledge, skill, and abilities of which a Standards Document is comprised. These two entities—documents and statements—are modeled in terms of an entity-relationship model (ER) and embodied as a directed graph using W3C's [Resource Description Language](#) (RDF).

The diagram below illustrates the use of the Standards Document and Statement entities using an example encoding of a competency in the Degree Qualification Profile (DPQ).



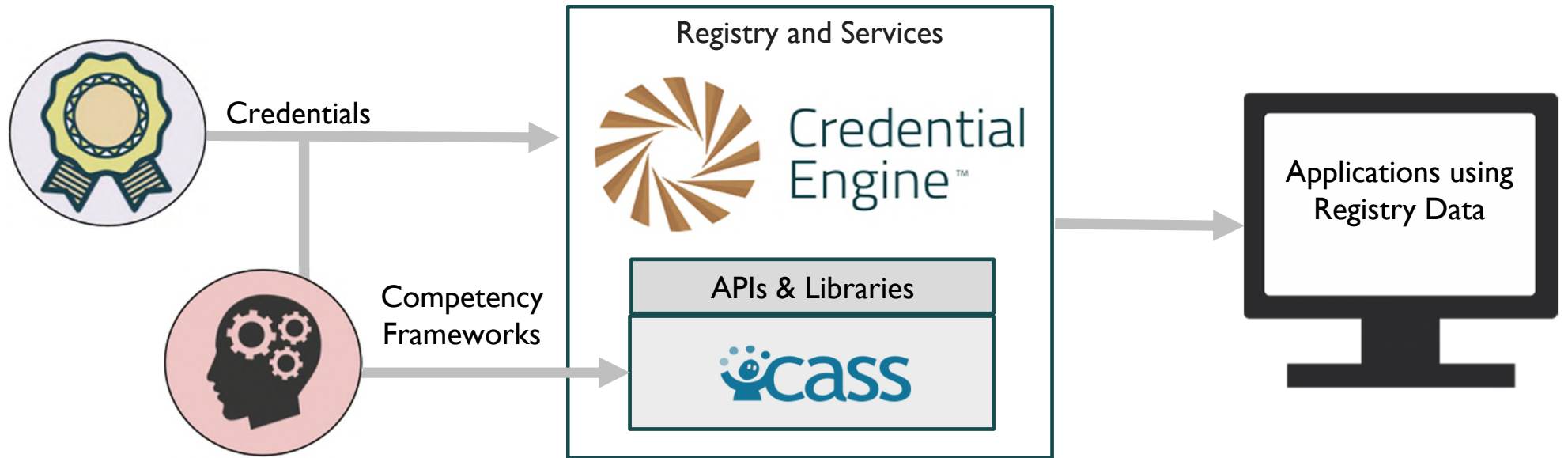


# Competency Data is Supported with Credential Registry Services



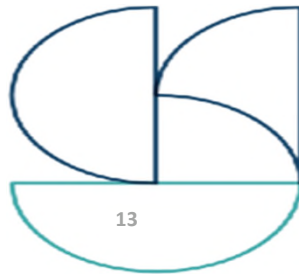


# Open Infrastructure



## Vision

Comprehensive registry of relevant frameworks.





# Credential Finder

**CREDENTIAL FINDER™**  
Discover Credentials  
Powered by Credential Registry  
Prototype Phase

Q Search ▾

**Search** **For**  
Assessments

Found 119 results

▾

## Building Analyst Professional Certification Exam

Building Performance Institute (BPI)

This certification is intended for those individuals who conduct building performance audits, including coordinate and/or install certain building performance work, measurement and verification services with related building analysis. Individuals may also specify, sell,

Last Downloaded: 11/29/2017

## CACP Application and Practicum

The Institute for Performance Improvement

\* Candidates demonstrating evidence of proficiency in all nine standards through experience only, should complete the Eligibility Application submitting evidence of proficiency in all nine standards. The application will go through a peer review using a scoring rubric. Candidates will receive feedback with recommendations for those standards that do not meet the criteria for proficiency. No additional fee is required. \* Candidates unable to demonstrate proficiency in all nine standards through experience must submit a continuing proposal and accompanying fee to CredentialRegistry.com. Once the proposal is approved, candidates will receive a time limit to complete the practicum. Candidates must also have a sponsor who can be a client, employer, or a TIFPI practice leader to attest to the work in completion the practicum. Candidates will negotiate a time limit with the sponsor and submit TIFPI to

Last Downloaded: 12/1/2017

## CCO Dedicated Pile Driver Operator Practical Exam

National Commission for the Certification Crane Operators

The seven tasks that make up the Practical Examination are: Task 1: Pre-operational (Shift) Inspection; Task 2: Driving on Test Pile; Task 3: Set Pile Down; Task 4: Safe Shutdown and Securing Procedures; Task 5: Initiate Pile; Task 6: Stand up, Cap, and Secure the Pile; Task 7: Position the Pile; Task 8: Test Weight in Barrel; Task 9: Stand up, Cap, and Secure the Pile; Task 10: Position the Pile; Task 11: Initiate Pile

Last Downloaded: 12/4/2017

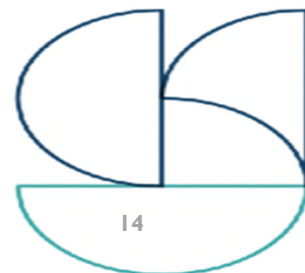
## CCO Dedicated Pile Driver Operator Written Exam

National Commission for the Certification Crane Operators

The Credential Finder pulls data from the Credential Registry and shows competencies with credentials, learning opportunities, and assessments.

Soon a search of frameworks will also be available.

<http://credentialfinder.org>





# Rosetta Stone

## Hieroglyphic

## Demotic

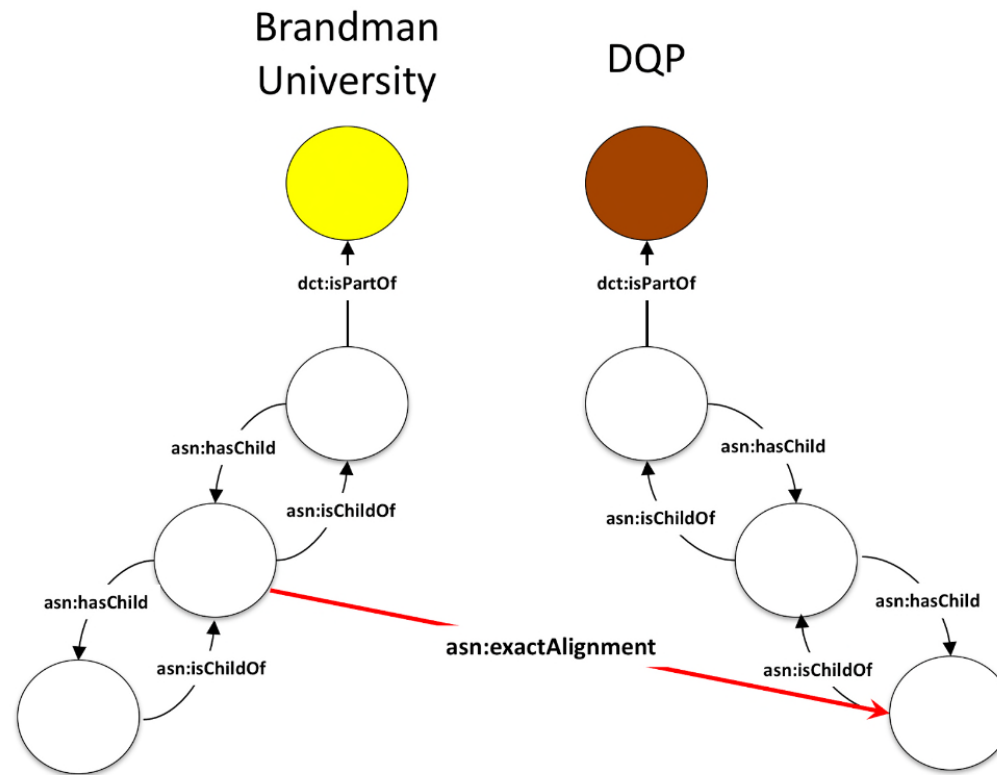
## Ancient Greek





# Cross Framework Connections

Because every ASN Standards Document resource and every ASN Statement resource is identified by URI, competency frameworks and their individual competencies can be mapped to each other regardless of where the Frameworks are located on the open Web.

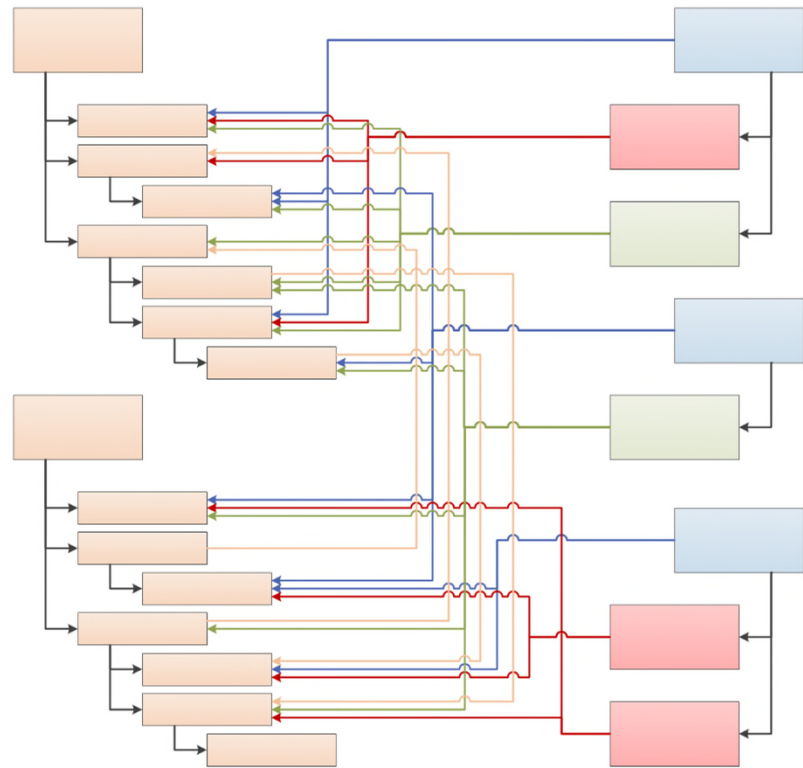




# Credentials and Competencies

The graph of credentials, assessments, learning opportunities, competency frameworks, competencies, and the ties between them can be very deep and detailed.

The Credential Engine leverages CTDL, CTDL-ASN, and CASS to enable these data to be put together, housed, and searched even if it is owned and provided by a variety of sources.









# CTDL: Pathway Work Group

## Pathways Definition

“In the context of Credential Engine, a pathway is comprised of structured sets of objectives and qualifying conditions defining points along a route to fulfillment of a job, occupation or career. Qualifying conditions include sets of prescribed, preferred or recommended evidentiary artifacts such as competencies attained (knowledge, skills, abilities), relevant awards and other forms of recognition, credentials earned and relevant experience.”



### Credential Engine Process Significant Managed CTDL Specification Updates Date Created March 20, 2018

Credential Engine (CE) is committed to an open, collaborative, and iterative process as the Credential Transparency Description Language (CTDL) family of specifications (for example, schemas, API's, and credential registry validation) evolve over time. CE manages specifications for: [credential schema](#), [competency framework schema](#), [Credential Registry validation schema](#). These specifications are governed by a [Namespace Policy](#) and you can see their Release Histories on the [CE Technical site](#).

#### Development Process

The need for the evolution and expansion of CE specifications comes from subject and technical experts and other stakeholders and follows the process outlined below. CE's Board provides oversight to assure that the processes for change are open. Proposals for specification updates bring Advisory, Registry Participants and other stakeholders together through an open, collaborative process. Final decisions for specification updates are made by CE Leadership.

1. Credential Engine's Technical Team develops a framing document to outline proposals for significant schema updates such as expansion. The document is frequently a result of input and recommendations by field experts and based on extensive technical reviews and modeling. This document includes a request for experts in the subject(s) and technical areas of the proposal to meet and provide input. The experts are recruited from all CE Advisory Groups, registry participants, and other organizations.
2. Review of the framing document is included as an agenda item with the monthly Technical Advisory Group (TAG) open meeting and in-depth discussion occurs. The TAG is an open group and interested parties can join the TAG or select to participate with open meetings as desired. All CE Advisory Groups and other stakeholders will be notified when these discussions are included on the agenda.
3. If relevant, the framing document is updated based on feedback from the TAG meeting and it is provided to all of the Advisory Group Chairs by the Credential Engine Executive Director. Advisory Group Chairs introduce the potential updates and provide the document to their respective group; members who are either subject or technical experts or have a general interest in the areas of the proposal are invited to participate in a formal Working Group, committing to between two to four webinars and actively providing input to the Proposal.
4. The Technical Team convenes the Working Group with a charter. The Group provides input during webinars and via shared Google documents and discussion groups to develop a Proposal for final consideration.
5. Based on input from the Working Group, the Technical Team develops the Proposal for updates with a deadline for final input. The Proposal is provided to all members of the Working Group, the TAG, and Advisory Group Chairs for distribution to their group. The Working Group must reach consensus for the Proposal to go forward.

### Pathway Work Group Charter

The Pathway Work Group provides subject matter and technical expertise to expand the Credential Transparency Description Language (CTDL). The expansion of CTDL supports credential transparency and the mission of the Credential Engine to promote transparency and credential literacy in the marketplace to reveal the world of credentials and inform the public.

CTDL reconciles with other specifications and is inviting members across data specification organizations to ensure the interoperability across standards where possible.

#### Pathways:

Pathway artifacts resulting from institutional decisions (e.g., endorsement pathways); and the personal journey a learner is pursuing (emergent artifact) or has pursued (artifact)

- Individual Learner Pathway (ILP)
- Organizational Pathway (OP)\*

\* Organizations, Collaborations or Institutions

In a well developed competency-based ecosystem, each of these seemingly disjoint classes has the ability to inform and support the other.

#### In Scope:

*Credential Engine's scoping interest lies in the definition and description of OPs and not ILPs. Thus, collaboration between the work of the CE Pathways Working Group (PWG) and other groups (eg., IMS Open Pathways Group) is to make sure we maximize the potential for each class of pathway to inform and support the other.*

#### Out of Scope:

- Determining what constitutes a best practice for designing pathways.
- Identifying how people/organizations should determine pathways.

The Work Group will develop: use cases, examples, reference terminology, and RDF models. The use cases will primarily address Pathway connections between the following CTDL classes:

- |                          |                      |
|--------------------------|----------------------|
| • Credentials            | • Assessment Profile |
| • Competencies           | • Task Profile       |
| • Learning Opportunities | • Other?             |





# National Security

## Other pathways with related occupations:

- Emergency and Fire Management Services
- Law Enforcement Services

### Bachelor's Degree (4 Years)

- Air Crew Officers
- Infantry Officers
- Systems Software Developers
- See Other Careers

### Advanced Degree (4+ Years)

- Emergency Management Directors
- See Other Careers

### 1-3 Years

- Air Crew Members Supervisors
- Detectives and Criminal Investigators
- Special Forces Members
- See Other Careers

### Less Than 1 Year

- Artillery and Missile Crew Members
- Radar and Sonar Technicians
- See Other Careers

### High School Diploma or GED

- Air Crew Members
- Infantry Members
- Radio Operators
- See Other Careers





## Human Services

The Human Services Career Cluster prepares you for jobs that relate to families and human needs. Whether you want to be a social worker, a childcare provider or a hairdresser, you will be addressing human needs.



This career cluster is organized into seven career pathways:

- Consumer services
- Counseling and mental health services
- Early childhood development and services
- Family and community services
- Personal care services

Note: The other two pathways are Culinary Arts and ProStart. We have chosen to include information about these pathways and anything related to food service, including becoming a chef or baker, on the Hospitality and Tourism Career Cluster page.

### Consumer Services – CIP Code 19.0401

\*Check Prerequisite \*\*Articulated Credit \*\*\*FHTC

#### INTRODUCTORY LEVEL

#### TECHNICAL LEVEL

#### APPLICATION LEVEL

##### CAREER CONNECTIONS\*\*

(Gr 11,12) (One Trimester, ½ credit) – may be repeated for credit

Prerequisite: Any trimester FCS course

*Written Application MUST be completed PRIOR to enrollment.*

Career Connections provides human services/family and consumer sciences related work-based learning experiences (paid or unpaid) outside the traditional classroom. Learning goals are set by the student, teacher and employer/adult mentor to create field experiences and/or discussions related to human services/family and consumer sciences occupational technical skills. Students are required and responsible for their own transportation to assigned locations. If student does not have transportation, he/she may not enroll in this course.





## Missouri Career Pathways



Career paths show good job opportunities, by typical training or experience, in the selected industry. Each industry also includes jobs by different business functions, a basic skills overview, and some of the big employers advertising jobs online.

The **Now**, **Next**, or **Later** categories indicated potential pathways to higher pay that comes with additional training and experience. Entry-level and average pay is also shown.

### > Now

Jobs typically need a high school diploma and short-term training

### > Next

Jobs typically need moderate or long-term training to an Associate's degree

### > Later

Jobs typically need a Bachelor's degree and/or more experience

### Advanced Manufacturing

### Bioscience

**Who's hiring** Monsanto, Pfizer, Quest Diagnostics Inc., Merck & Company, Boehringer Ingelheim

**Know the Basics** Bioscience deals with how living things work and interact with each other, and teaches how to ask questions, make observations, and solve problems. Soft skills, such as interpersonal skills, professionalism, and dependability, are important in all industries and occupations, including Biosciences. Bioscience deals heavily with research and production so knowledge of mathematic and scientific principles is a must. Safety and quality control are also a critical part of this industry so attention to detail and continuous learning are necessary.

### > Now

#### Animal Sciences

Weighers, Measurers, C...

Entry: \$22,190

#### Production

Average: \$30,660

### > Next

Agricultural and Food S...

Entry: \$29,380

Average: \$43,330

### > Later

Natural Sciences Managers

Entry: \$63,770

Average: \$113,730

### Research and Development

Farmworkers and Labor...

Entry: \$20,170

Average: \$27,370

Chemical Technicians

Entry: \$36,970

Average: \$51,360

Chemical Engineers

Entry: \$76,670

Average: \$104,960

## CHEMICAL ENGINEERS

[Summary Report](#)[Help & Tutorials](#)[Print](#)

### Topics

#### [At a Glance](#)

[Overview](#)[Task List](#)[Common Work Activities](#)[Working Conditions](#)[Physical Demands](#)[Skills and Abilities](#)[Knowledge](#)[Preparation](#)[Helpful High School Courses](#)[Wages](#)[Employment and Outlook](#)[Interests and Values](#)[Licensing / Certification](#)[Missouri Jobs](#)[Career Grades](#)

### Related Information

[Occupations](#)[Programs of Study](#)[Industries](#)[US Jobs](#)

### Videos

[Occupation Videos](#)

## At a Glance

Chemical engineers use principles of chemistry and engineering to solve problems in manufacturing.

Quick Facts: Chemical Engineers	
Wages	Earn \$94,370 per year
Employment	Small occupation
10 Year Growth	Declining
Annual Openings	Few

[View Video](#)

### Preparation

A chemical engineer typically needs to:

- have a high school diploma or equivalent
- have a bachelor's degree in chemical engineering
- have a license

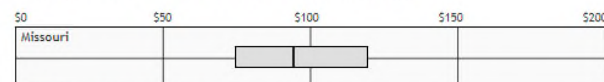
### Working Conditions

In a typical work setting, chemical engineers:

- Are responsible for the health and safety of their staff. They may train staff members who work closely with chemicals how to avoid injury.
- Always wear protective gear, such as safety goggles or gloves. Some may wear hard hats.
- Must be very accurate in performing their job and make sure everything is completed. Any errors could have serious results. Engineers work with chemicals that, if not handled properly, could injure staff or the engineer.
- Work longer than 40 hours a week.

### Wages

In Missouri, chemical engineers earn a median wage of \$94,370 per year.



\$ amounts are in thousands of dollars.

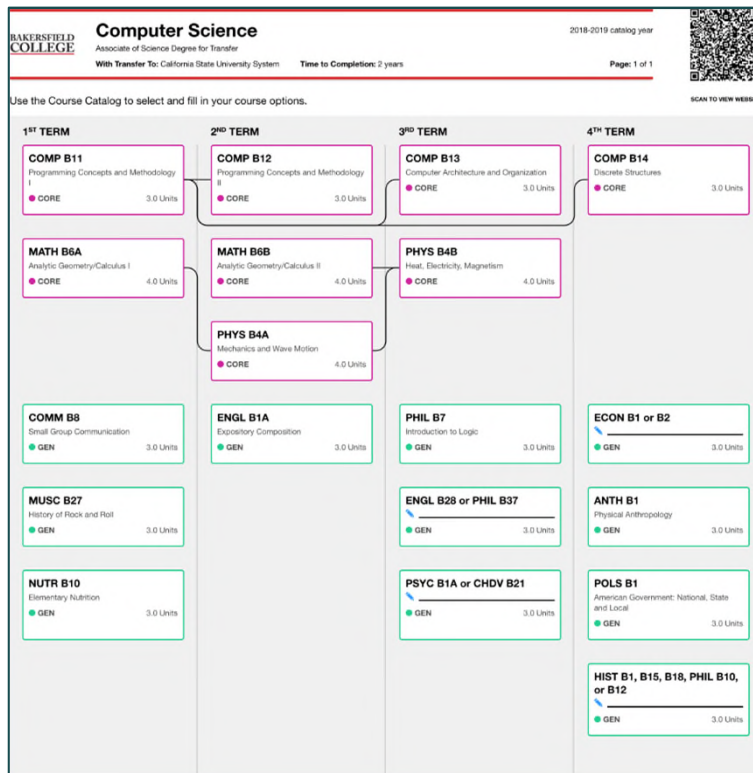
### Employment and Outlook

In Missouri, 599 chemical engineers work in this small occupation.

Location	Employment	10 Year Growth	Annual Openings
Missouri	599 Small	-1.7% Declining	17 Few



# Bakersfield College: AS for transfer (Computer Science)



[https://programmap.bakersfieldcollege.edu/academics/interest-clusters/4/programs/Computer\\_Science-ASSOCIATE\\_IN\\_SCIENCE\\_FOR\\_TRANSFER](https://programmap.bakersfieldcollege.edu/academics/interest-clusters/4/programs/Computer_Science-ASSOCIATE_IN_SCIENCE_FOR_TRANSFER)

1 <sup>ST</sup> TERM			16.0 Units
● CORE	<b>COMP B11</b> Programming Concepts and Methodology I	3.0 Units	
● CORE	<b>MATH B6A</b> Analytic Geometry/Calculus I	4.0 Units	
● GEN	<b>COMM B8</b> Small Group Communication	3.0 Units	
● GEN	<b>MUSC B27</b> History of Rock and Roll	3.0 Units	
● GEN	<b>NUTR B10</b> Elementary Nutrition	3.0 Units	

2 <sup>ND</sup> TERM			14.0 Units
● CORE	<b>COMP B12</b> Programming Concepts and Methodology II	3.0 Units	
● CORE	<b>MATH B6B</b> Analytic Geometry/Calculus II	4.0 Units	
● CORE	<b>PHYS B4A</b> Mechanics and Wave Motion	4.0 Units	
● GEN	<b>ENGL B1A</b> Expository Composition	3.0 Units	

3 <sup>RD</sup> TERM			16.0 Units
● CORE	<b>COMP B13</b> Computer Architecture and Organization	3.0 Units	
● CORE	<b>PHYS B4B</b> Heat, Electricity, Magnetism	4.0 Units	
● GEN	<b>PHIL B7</b> Introduction to Logic	3.0 Units	
● GEN	<b>ENGL B28 or PHIL B37</b> Choose a course	3.0 Units	
● GEN	<b>PSYC B1A or CHDV B21</b> Choose a course	3.0 Units	

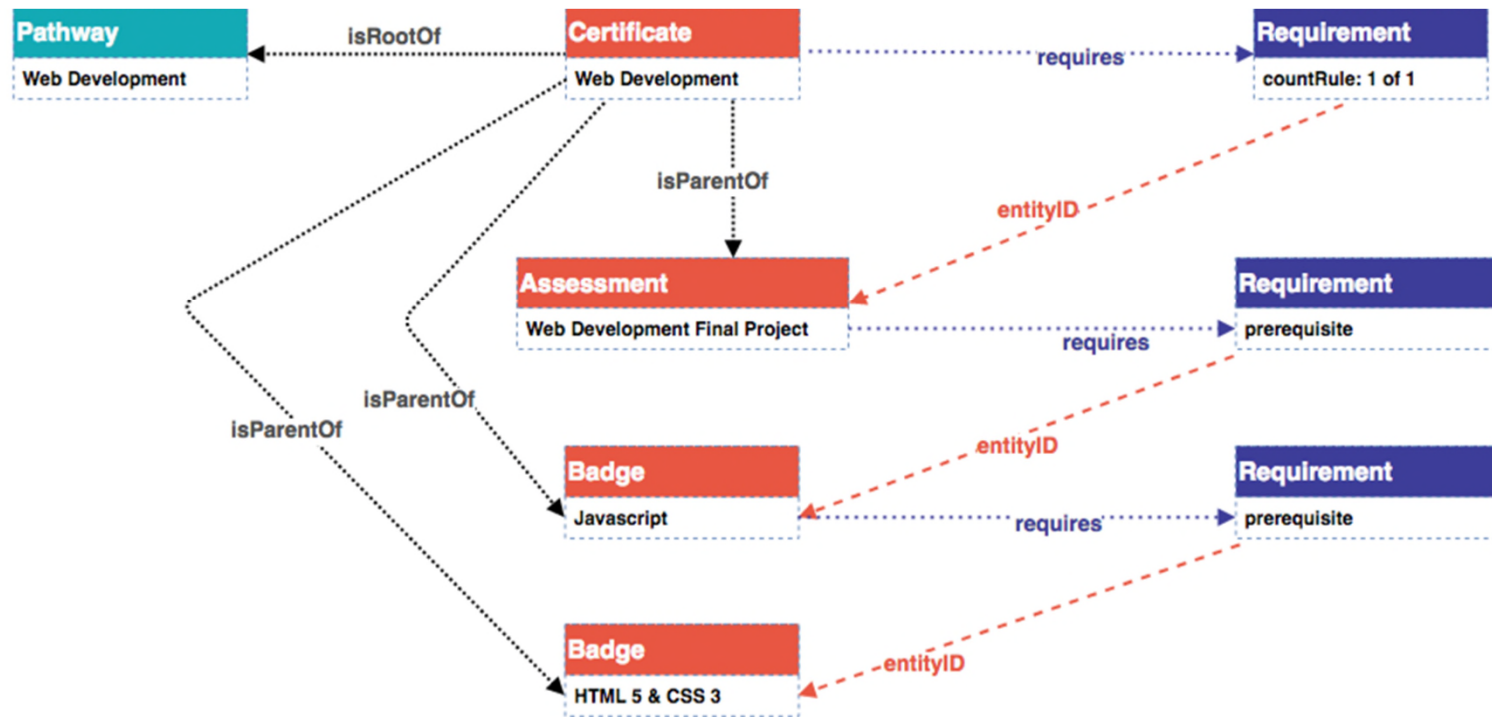
4 <sup>TH</sup> TERM			15.0 Units
● CORE	<b>COMP B14</b> Discrete Structures	3.0 Units	
● GEN	<b>ECON B1 or B2</b> Choose a course	3.0 Units	
● GEN	<b>ANTH B1</b> Physical Anthropology	3.0 Units	
● GEN	<b>POLS B1</b> American Government: National, State and Local	3.0 Units	
● GEN	<b>HIST B1, B15, B18, PHIL B10, or B12</b> Choose a course	3.0 Units	

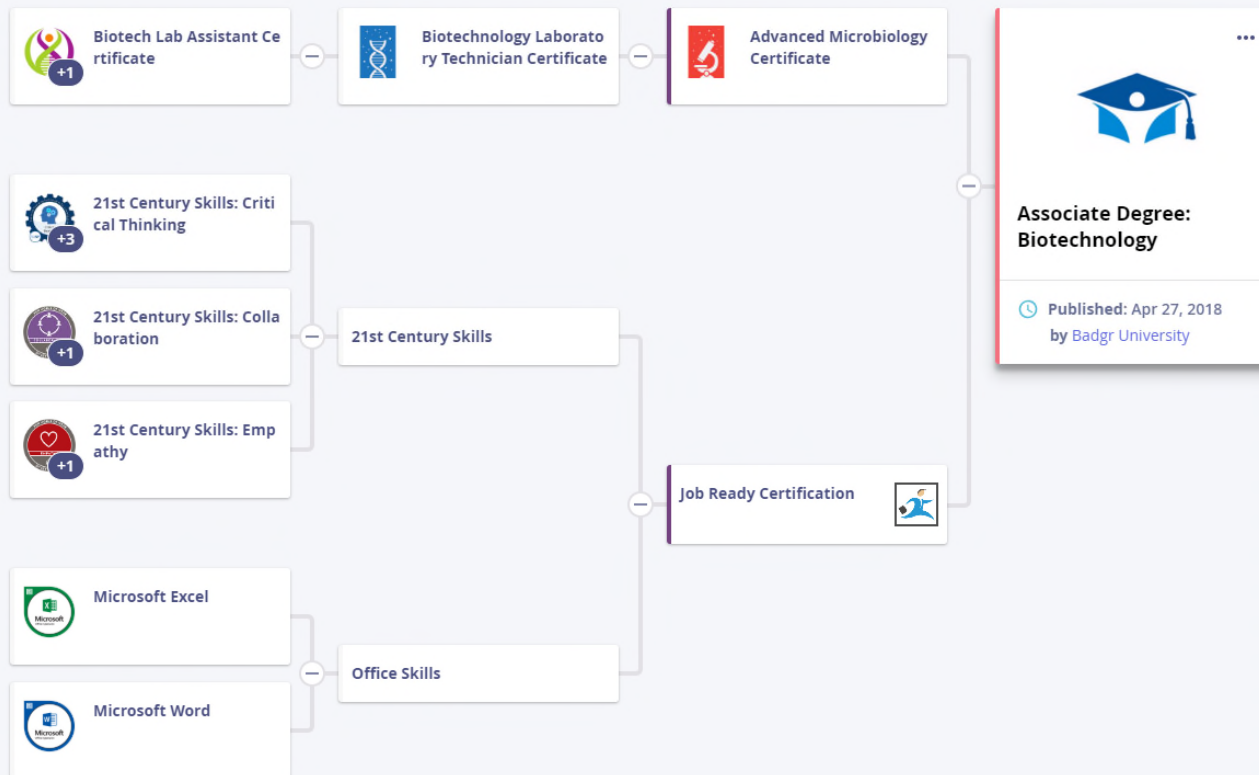
- [https://github.com/CredentialEngine/vocabularies/blob/master/Pathway-Examples/Bakersfield\\_AS\\_CS\\_pathway-CSU\\_transfer.json](https://github.com/CredentialEngine/vocabularies/blob/master/Pathway-Examples/Bakersfield_AS_CS_pathway-CSU_transfer.json)
- [https://github.com/CredentialEngine/vocabularies/blob/master/Pathway-Examples/Bakersfield\\_AS\\_CS\\_pathway-UC\\_transfer.json](https://github.com/CredentialEngine/vocabularies/blob/master/Pathway-Examples/Bakersfield_AS_CS_pathway-UC_transfer.json)





# Concepts – Pathway Components





- Selected Element
- Required Children

## Pathway Details

### Associate Degree: Biotechnology

An example curriculum that shows how CTE certificates can be stacked into larger credentials while also leveraging 21st Century Skills badges to close the skills gap. Badges in this example could be issued by any platform or LMS.

#### Completion Badge

This badge will be automatically awarded when the requirements for this Pathway are met.

Associate Degree  
Badgr University

#### Required Children

A recipient must have completed **ALL** of the following child elements in order to complete this element.

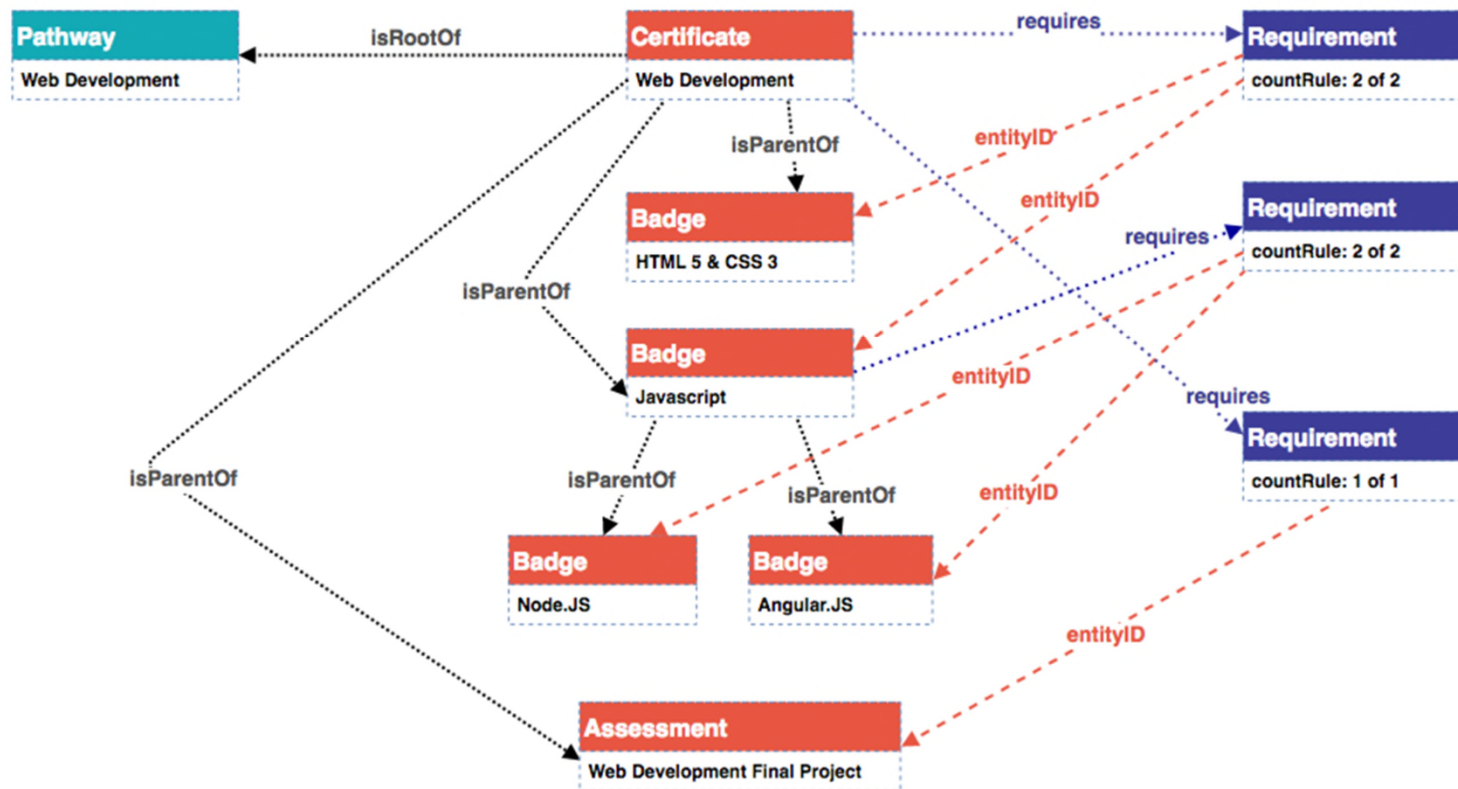
Advanced Microbiology Certificate

Job Ready Certification



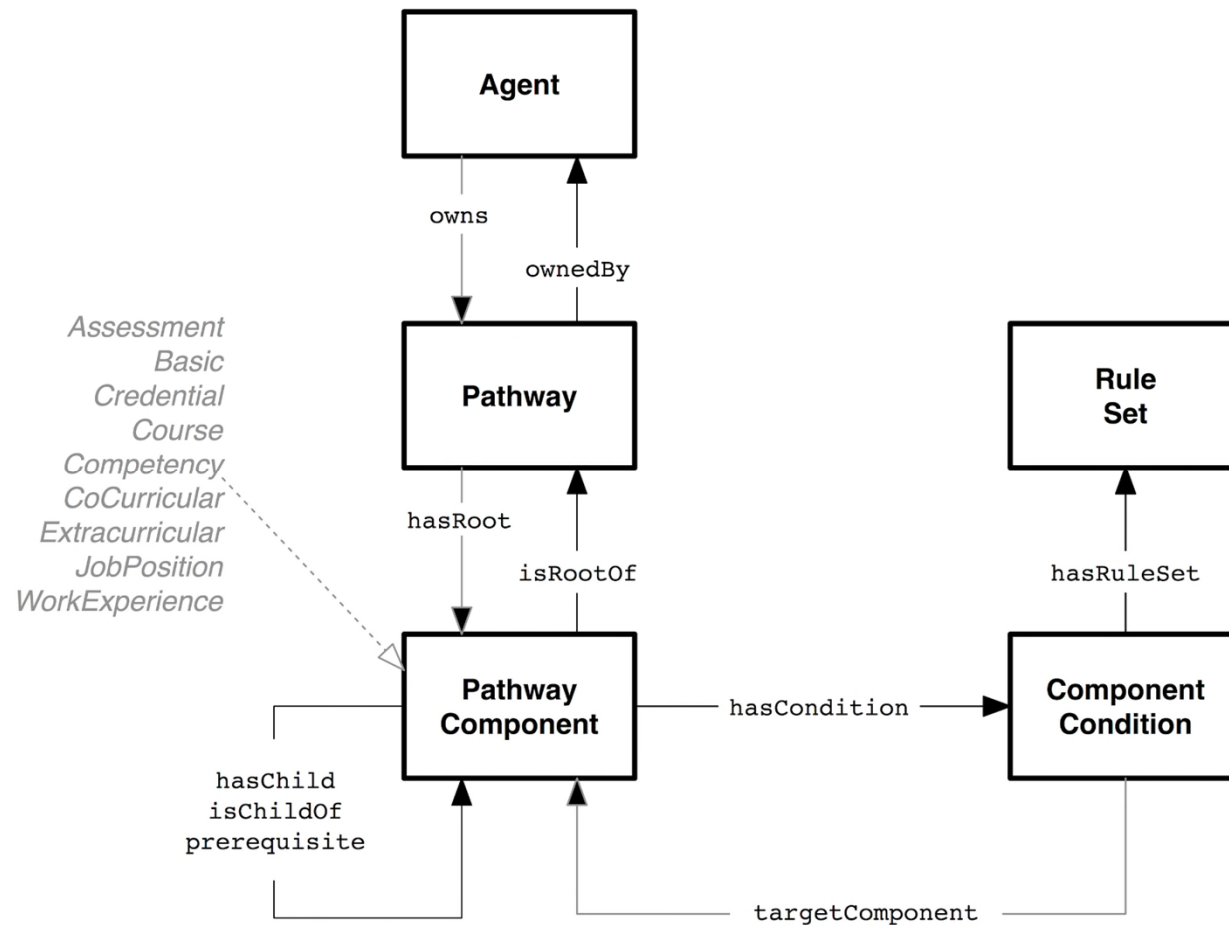


# Concepts – Rule set





# Draft Pathway Domain Model: Object properties

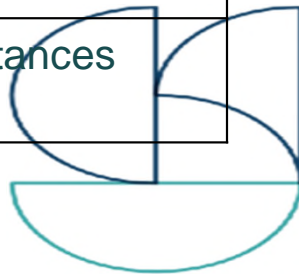




# Draft Pathway Classes

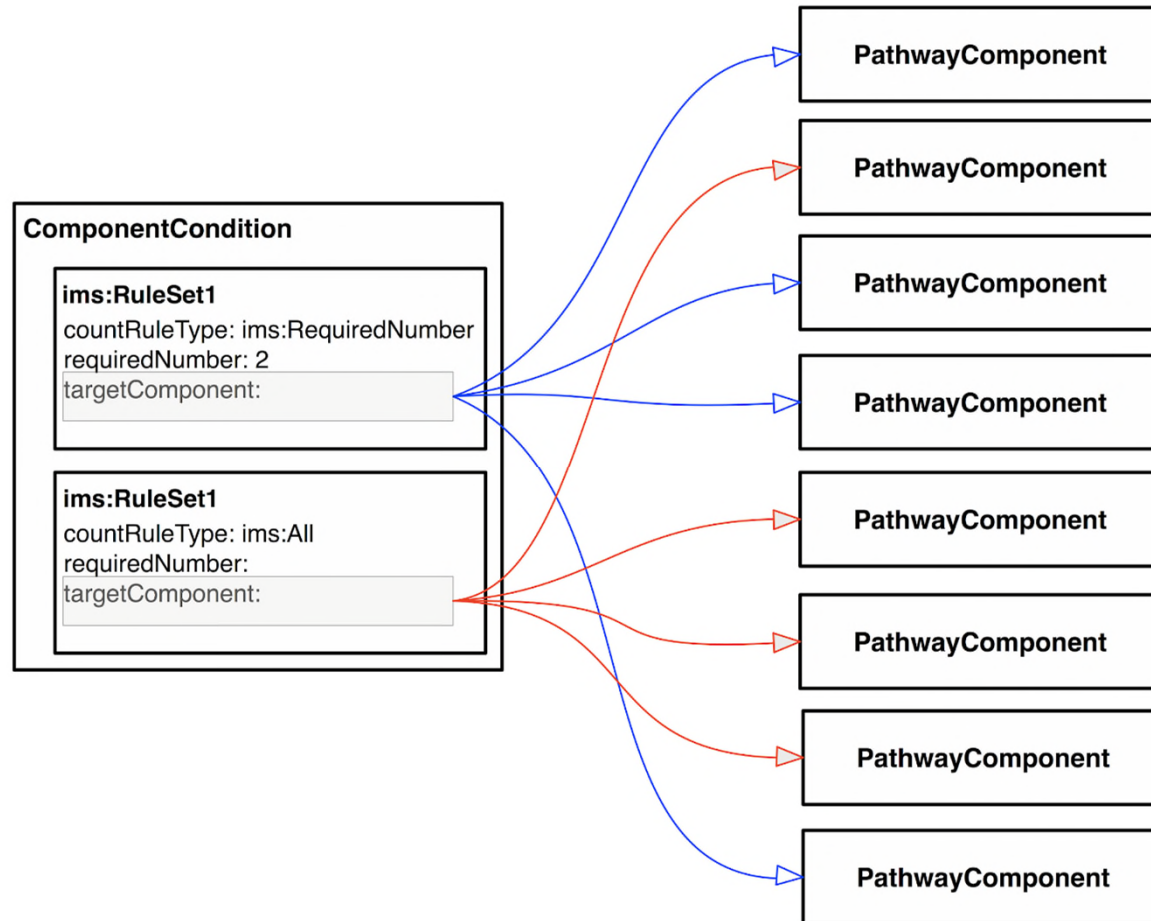
Classes	Draft Definition
Pathway	Entity comprised of structured sets of objectives and qualifying conditions defining points along a route to fulfillment of a job, occupation or career. The entity represents a pathway as a whole including a reference to an instance of PathwayComponent that serves as the root or destination node of the pathway.
PathwayComponent	Entity that serves as a defined point along the route of a Pathway. A PathwayComponent describes an objective and its completion requirements through reference to one or more instances of ComponentCondition.
ComponentCondition	Entity that describes what must be done to complete one PathwayComponent [or part thereof] as determined by the issuer of the Pathway. A ComponentCondition is comprised of one or more instances of the RuleSet entity.
RuleSet	Entity that identifies the rules by which other PathwayComponent instances satisfy a PathwayComponent objective. <sup>††</sup>

<sup>††</sup> In order to meet varying circumstances, there will likely be more than one recognized RuleSet. All machine actionable?





# Multi-rule set component condition



# Draft Component Condition subclasses (types)

Course (@type)
courseCode (SCHEMA)
educationLevel (CTDL)
programTerm
level
name (CTDL)
description (CTDL)
creditUnitType (CTDL)
creditUnitValue (CTDL)
source (CTDL)

Co-Curricular (@type)
activityType
scoringMethodType (CTDL)
roleName (SCHEMA)
name (CTDL)
description (CTDL)
creditUnitType (CTDL)
creditUnitValue (CTDL)
defaultPoints
source (CTDL)

Assessment (@type)
assessmentMethod (CTDL)
scoringMethodType (CTDL)
hasGroupParticipation (CTDL)
offeredBy (CTDL)
assessmentMethodType (CTDL)
assessmentOutput (CTDL)
name (CTDL)
description (CTDL)
creditUnitType (CTDL)
creditUnitValue (CTDL)
defaultPoints
source (CTDL)

Competency (@type)
codedNotation (CEASN)
competencyCategory (CEASN)
competencyText (CEASN)
isPartOf (CEASN)
description (CEASN)
creditUnitType (CTDL)
creditUnitValue (CTDL)
defaultPoints
source (CEASN)

Credential (@type) (CTDL subclasses)
degreeMajor (CTDL)
degreeMinor (CTDL)
degreeConcentration (CTDL)
name (CTDL)
description (CTDL)
creditUnitType (CTDL)
creditUnitValue (CTDL)
defaultPoints
source (CTDL)

JobPosition (@type)
occupationType (CTDL)
name (CTDL)
description (CTDL)
source (CTDL)

Basic (@type)
type
name (CTDL)
description (CTDL)
creditUnitType (CTDL)
creditUnitValue (CTDL)
defaultPoints
source (CTDL)

Co-Curricular by definition means outside activity in support of a curriculum. Shouldn't this accommodate a broader range of relevant experience that has not been acknowledged by other means/types like work history (job), credential, assessment etc.? E.g., apprenticeship, internship.

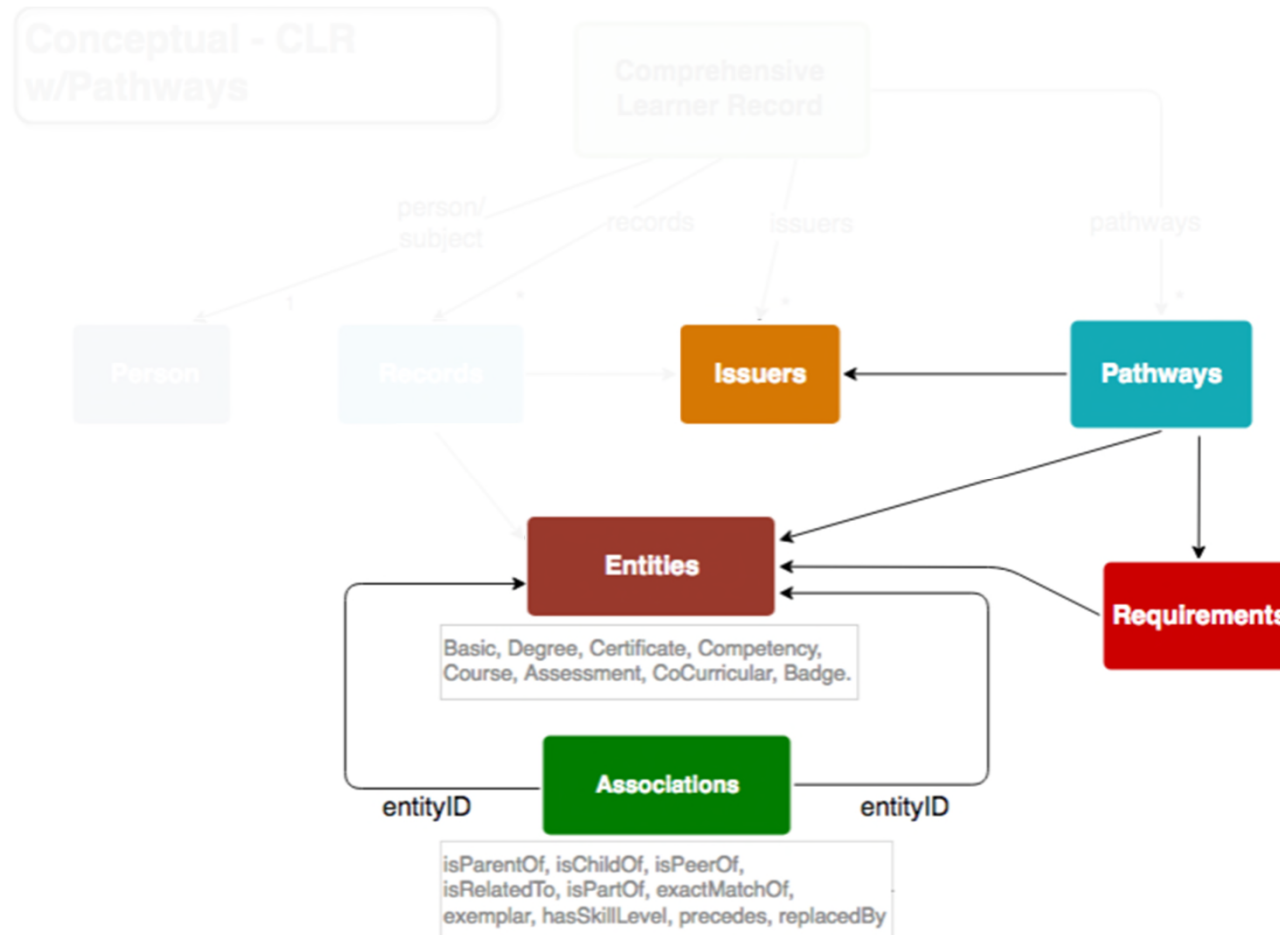
**Start “slim” and add properties only with demonstrated need**

<https://github.com/CredentialEngine/vocabularies/issues/546>



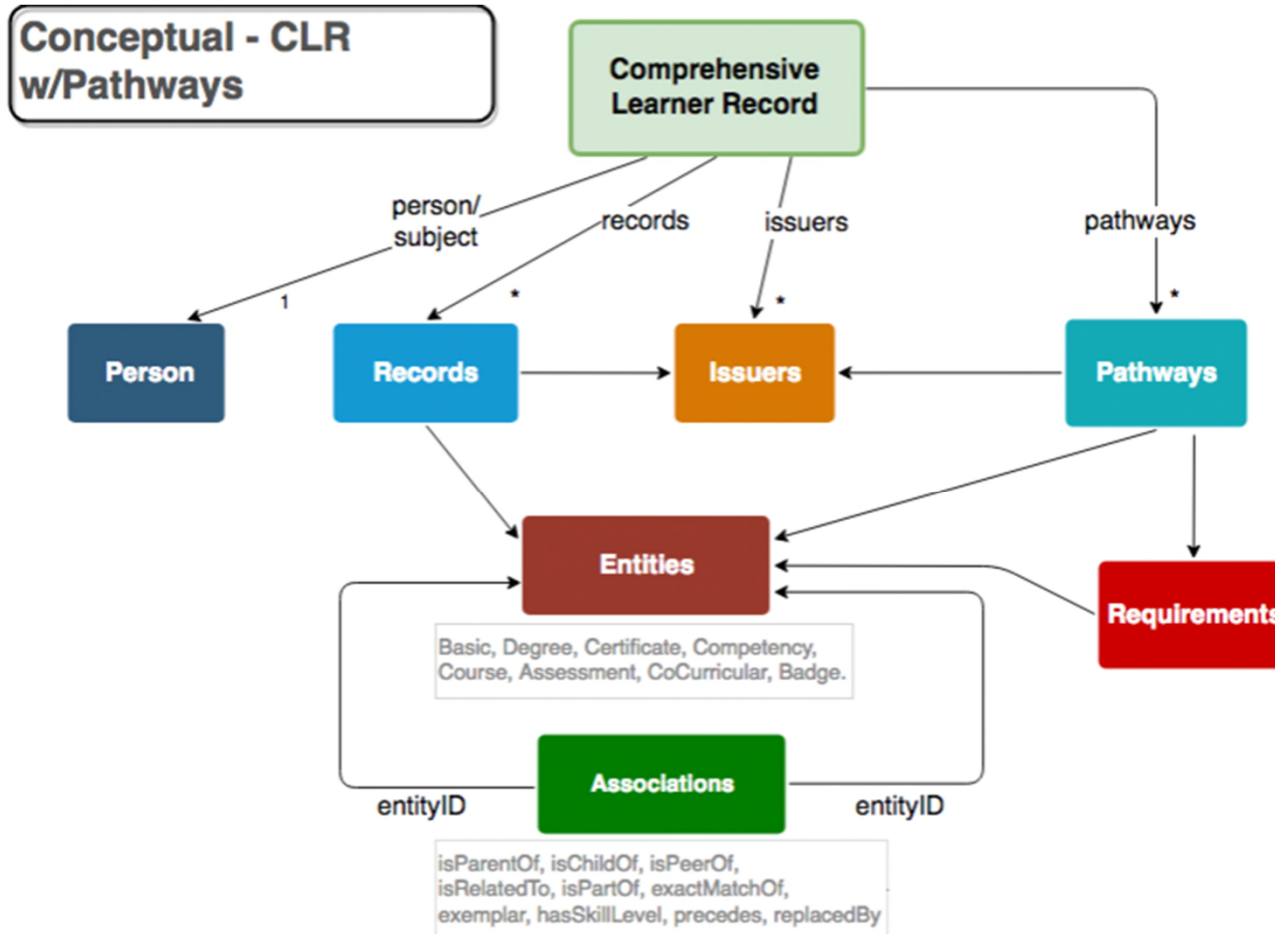


# Pathway - Comprehensive Learner Record





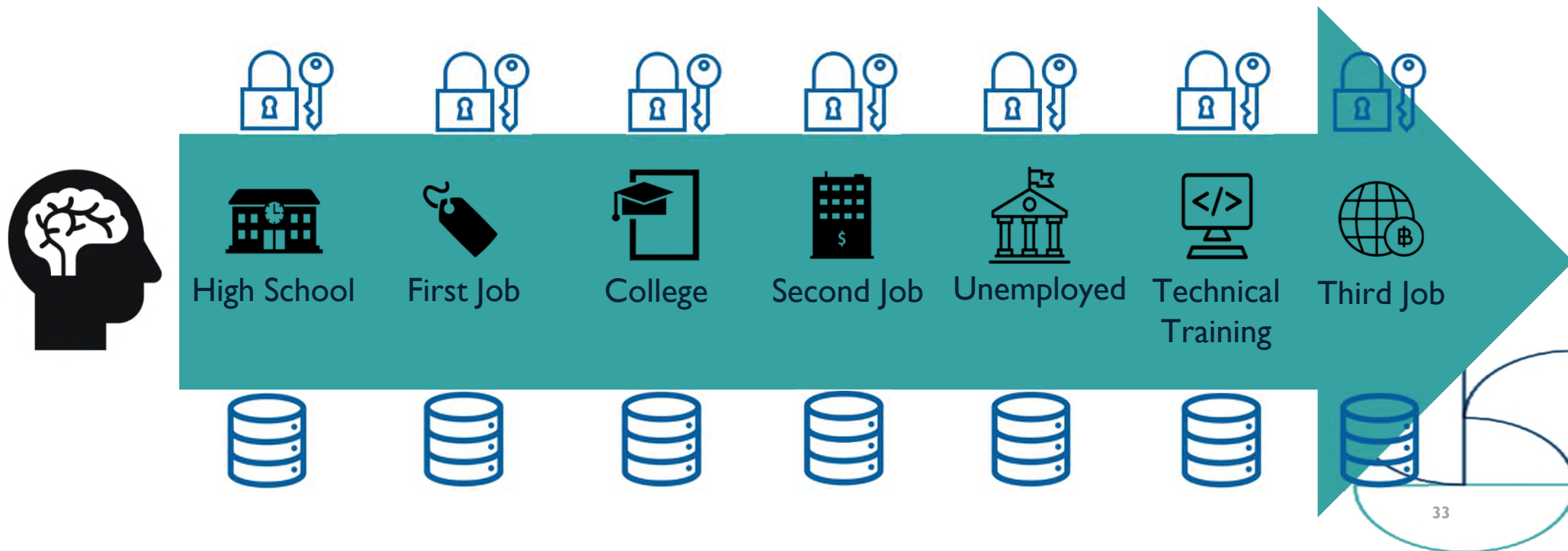
# Comprehensive Learner Record (CLR)





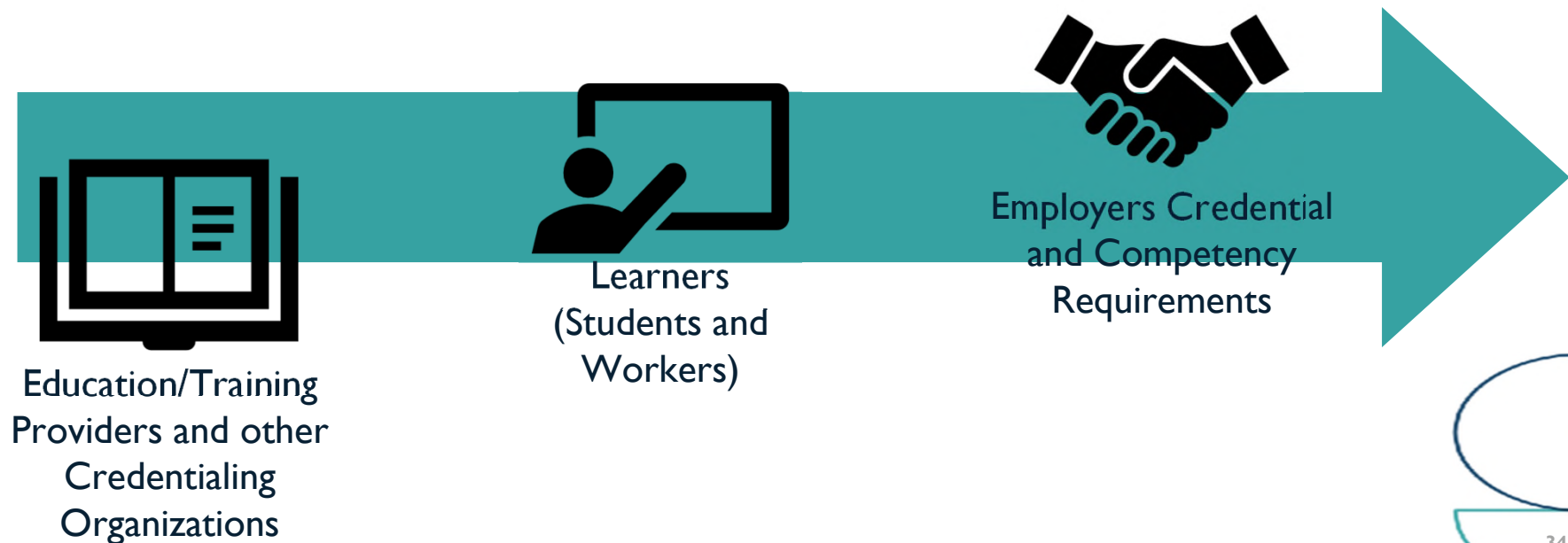
# Learners of the Future Need Control of their Data

Learners currently do not have control over their learning or how information about them from education, training, employment, or other sources is made available to them or how this information is shared.

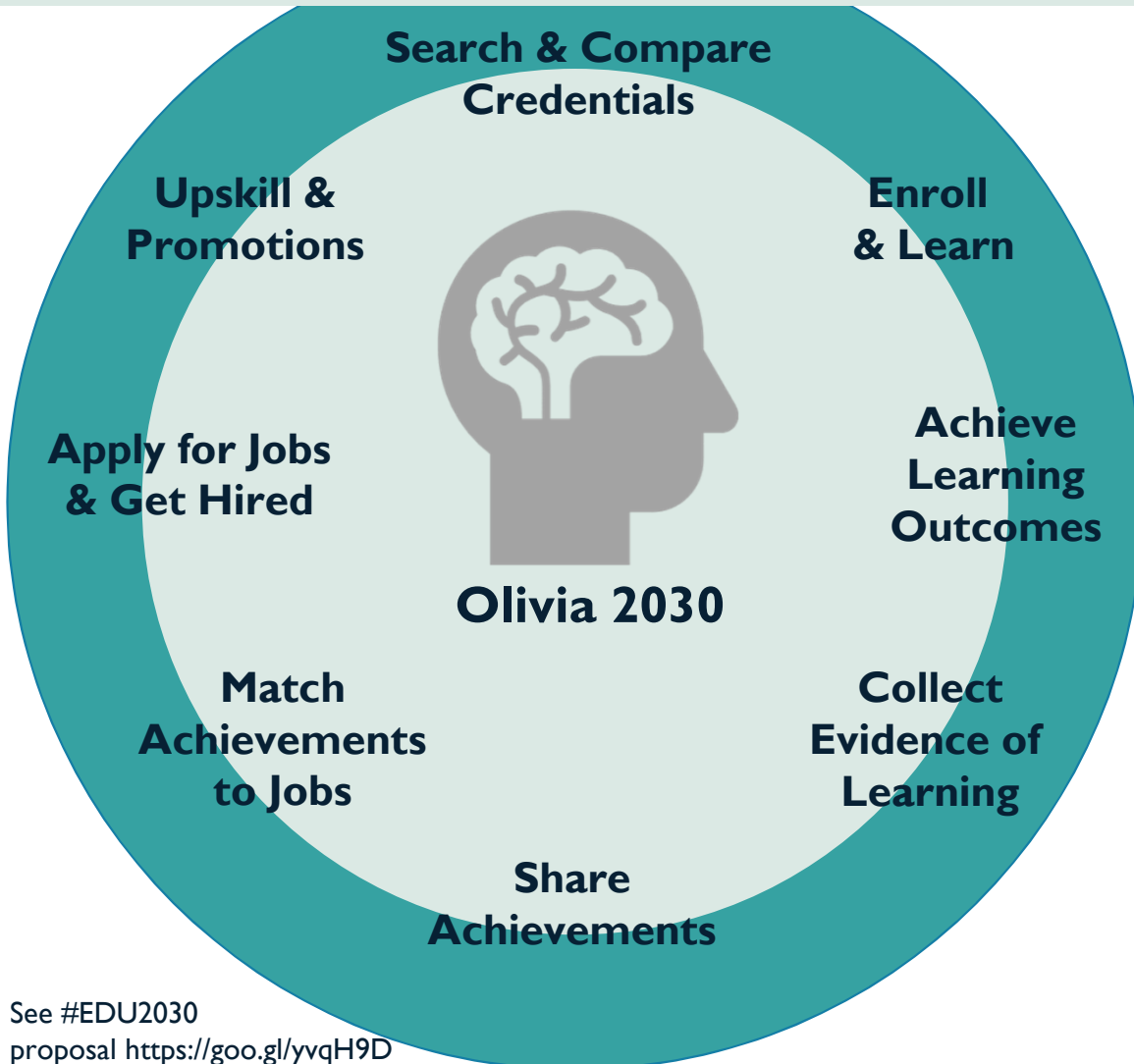


# Information About Credentialing and Employer Preferences and Requirements is Disconnected

**Credentialing and employment information is not connected causing mixed signals in the talent marketplace including misalignment of training to competencies employers require or prefer.**



# Harmonizing Data Standards Enables Learner-Centered Tools



## Interoperability Data Standards

Access 4 Learning (A4L): SIF

Advanced Distributed Learning Initiative (ADL): Competency & Skills System (CaSS), Experience API (xAPI)

Credential Engine: Credential Transparency Description Language (CTDL), CTDL-Competency Framework, Credential Registry

Common Education Data Standards (CEDS): Elements and Data Model

Ed-Fi Alliance: Ed-Fi Data Standard

HR Open Standards: Assessments, Interviewing, Recruiting and Screening

IMS Global: Caliper, Competencies & Academic Standards Exchange (CASE)", Learning Tools Interoperability (LTI), OneRoster, Open Badges, Question & Test Interoperability (QTI)

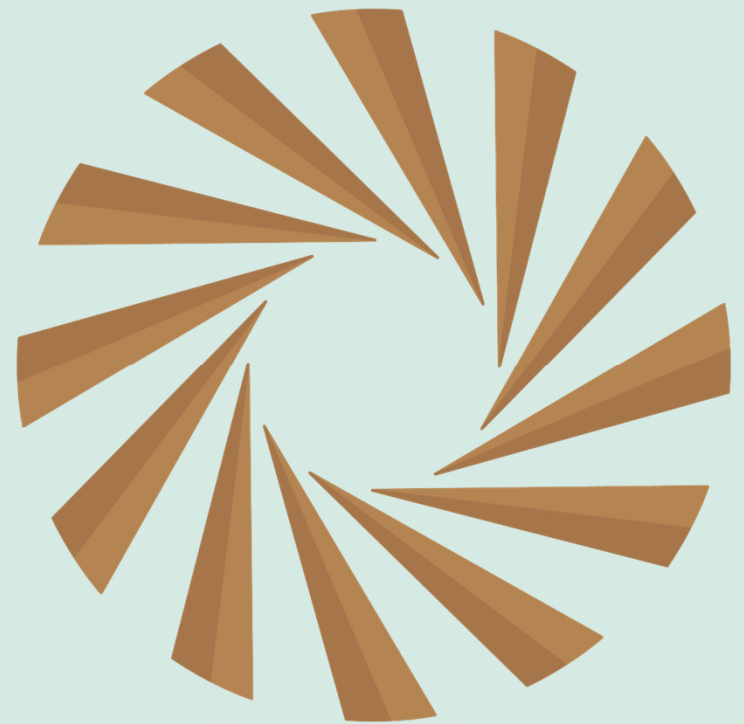
Postsecondary Electronic Standards Council (PESC): Standardization of Postsecondary Electronic Data Exchange (SPEEDE)

US Chamber of Commerce: Job Data Exchange (JDX)

World Wide Web Consortium (W3C) Community: Schema.org

Other domain-specific specifications such as competencies, maintenance task analysis, occupations...

Q&A  
About  
Credential Engine





# For more information

Scott Cheney Credential Engine Executive Director  
[scheney@credentialengine.org](mailto:scheney@credentialengine.org)

Jeff Grann Credential Solutions Lead  
[jgrann@credentialengine.org](mailto:jgrann@credentialengine.org)

: [info@credentialengine.org](mailto:info@credentialengine.org)

: [credentialengine.org](http://credentialengine.org)

Technical Information: [www.credreg.net/](http://www.credreg.net/)

Credential Finder Search App Prototype:  
<http://credentialfinder.org>



Follow @credengine on social media

