

Job Registry & T3 Innovation Network

Exploring Web 3.0 Technology Applications in Talent
Marketplace

May 2, 2018





U.S. Chamber of Commerce

- Over 2,500 state and local chambers of commerce
- Over 3 million businesses representing all industry sectors and firm sizes



U.S. Chamber of Commerce Foundation

- Non-profit affiliate focused on strengthening America's long-term competitiveness
- Center for Education and Workforce, Corporate Citizenship Center, Hiring our Heroes



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Topics

- Job Registry
- T3 Innovation Network



Job Registry

GoodWork!

Create Employer Profile

Progress...

Company Name

MediMake, Inc.

Industry

Medical Equipment Manufacturing

Preferred HR Standards and Competency Models for Job Templates

<input checked="" type="checkbox"/>	NIMS	Detail >
<input checked="" type="checkbox"/>	O*NET	Detail >
<input type="checkbox"/>	ESCO	Detail >
<input type="checkbox"/>	Medicert	Regular >

The Job Registry will draw from and improve upon open competency frameworks.

Job Analysis
& Description
Services

Resource
Library

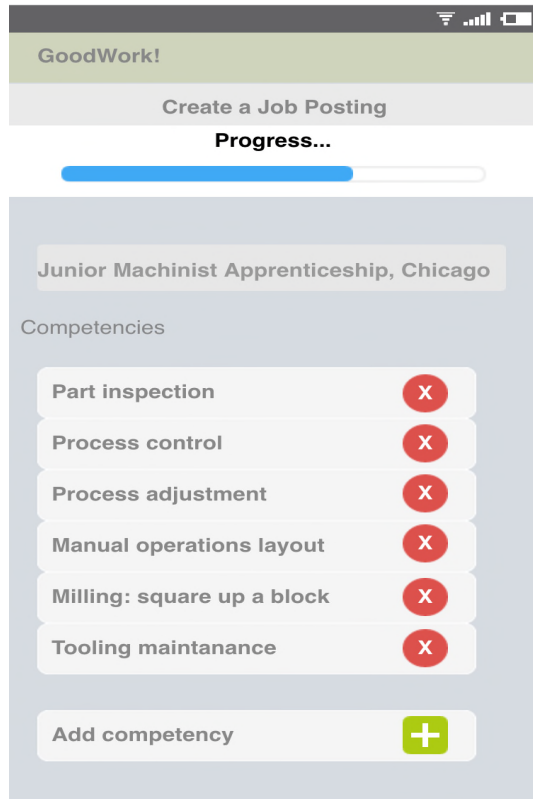
Anonymized
Job Data
Repository



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Job Registry



GoodWork!

Create a Job Posting

Progress...

Junior Machinist Apprenticeship, Chicago

Competencies

Part inspection	X
Process control	X
Process adjustment	X
Manual operations layout	X
Milling: square up a block	X
Tooling maintenance	X

Add competency +

Employers verify and add competencies based on an industry standard and open competency models.

Resource
Library



Credential
Engine



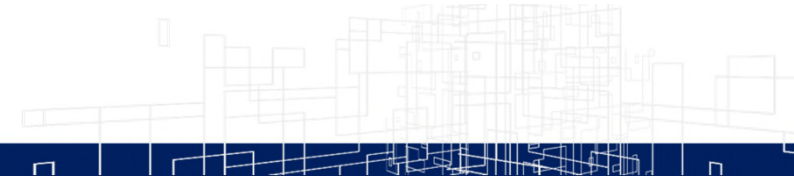
National Institute for Metalworking Skills®



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Lumina™
FOUNDATION



The Public-Private Data Infrastructure of the Future

- Applying Web 3.0 technologies to learner records, credentialing, and HR systems.
- Identifying high-impact use cases and pilots.



T3 Innovation Network

Improving the Talent Marketplace

**Interoperability/
Harmonization**
Technical Standards



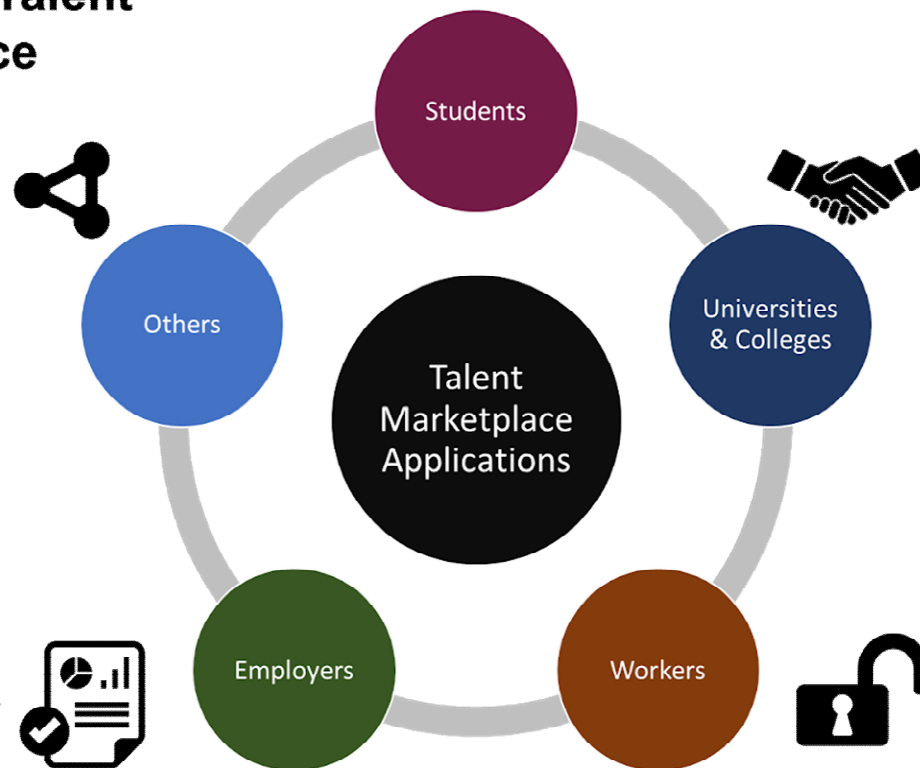
Trust
Distributed Ledger
Technologies
Smart Contracts



Transparency
Semantic Web
Technologies



Analytics
Artificial Intelligence
Machine Learning
Big Data Analytics



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T3 Innovation Network

Proposed Principles

Principle 1: Focus on High-Impact Stakeholder Use Cases

Principle 2: Promote Web 3.0 Convergence

Principle 3: Foster Open Collaboration

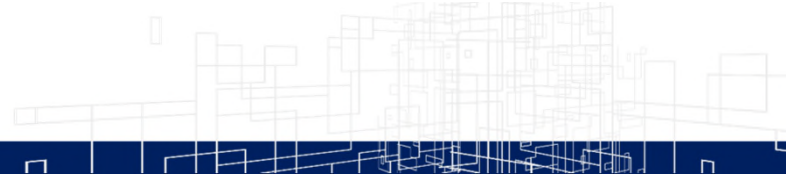
Principle 4: Develop Open Technical Standards and Protocols

Principle 5: Utilize Open Competency Frameworks, Taxonomies, and Ontologies



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Proposed Principles (cont.)

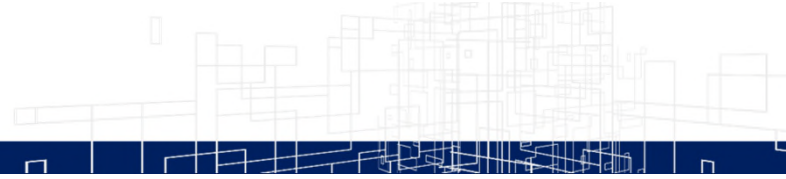
Principle 6: Empower Individuals and Enable Self-Sovereign Identity and Data Management

Principle 7: Facilitate Open Data Access in Public-Private Data Management

Principle 8: Promote Ethical Practices



T3 Innovation Network



Work Groups

Work Group 1: Stakeholder Use Cases for Achieving Breakthrough Innovations

Work Group 2: Exploring Sustainable Data Standards Convergence

Work Group 3: Developing and Analyzing Competencies

Work Group 4: New Architectures and Uses of Linked Individual-Level Data



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Work Group 1 Objectives

Stakeholder Use Cases for Achieving Breakthrough Innovations

- Identify the highest-impact stakeholder use cases where Web 3.0 technology convergence could improve interoperability and achieve breakthrough innovations in:
 - Employer signaling of hiring requirements including competencies and credentials;
 - Talent sourcing that includes recruitment, screening, verification, and hiring;
 - Learners pursuing careers, education, and credentialing opportunities;
 - Education and Training Providers improving the delivery of services to employers and learners.



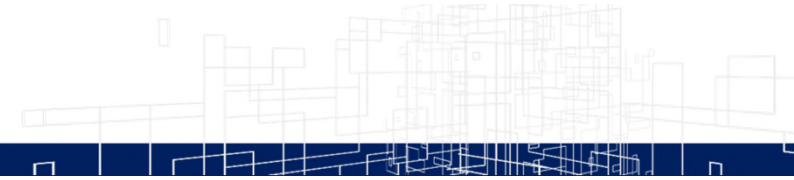
Work Group 1 Objectives (cont.)

Stakeholder Use Cases for Achieving Breakthrough Innovations

- Identify challenges and issues that should be addressed in the technical work groups.
- Identify performance metrics for evaluating the potential impacts of these use cases on improving the talent marketplace.
- Explore ethical considerations.



Work Group 2 Objectives



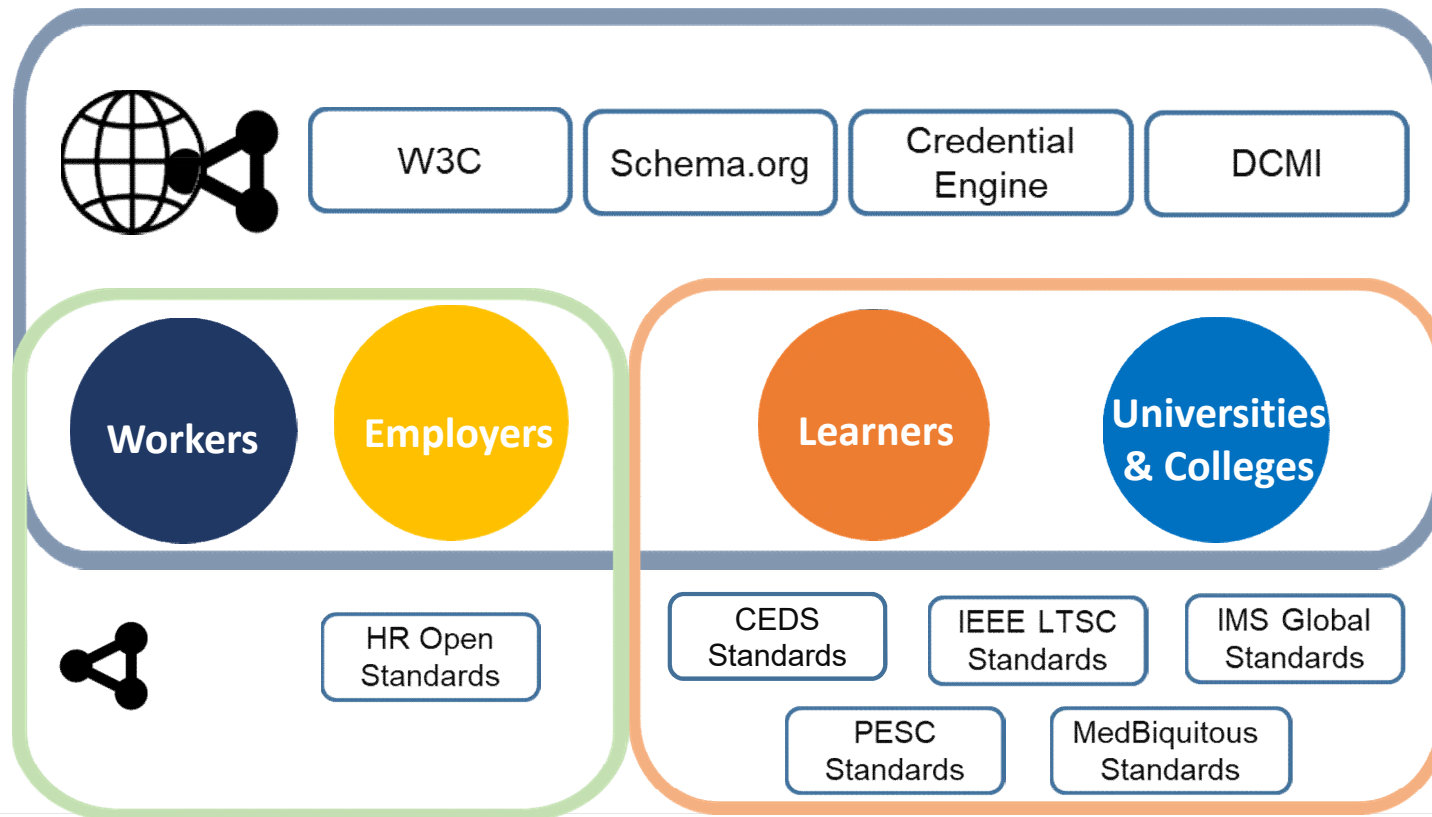
Exploring Sustainable Data Standards Convergence

- Identify stakeholder use cases that require additional data standardization and/or improved data standards harmonization.
- Develop plans and identify pilot projects for improving data standardization.



Work Group 2

Technical Standards Landscape



Credential Ecosystem Mapping Team

- Mapped several data standards for competency frameworks.
- Now mapping data standards for credentials.

Ecosystem Competency Mapping

- Sort by highest # of Identical, Reworded, Intent, etc. matches
- Sort by highest overall match

Spine	Organization	Object	Property	Alignment
CEDS Object: Competency Framework Item Property: Competency Framework Item Statement Definition: The text of the statement. The textual content that either describes a specific competency or describes a less granular group of competencies within the taxonomy of the competency framework.	CASE	CF Item	fullStatement	Identical
	CTDL/ASN	Statement	description	Identical
	PESC	CommonCredentia/Course/LearningOutcome	LearningOutcomeDescription	Identical
	HR Open	DefinitionStatementType	statementTexts	No Match
	MedBiquito	lom	general.description	Intent
	CASS	Competency	schema.org/name or schema.org/description	Disaggregated
CEDS Object: Competency Framework Item Node Name Property: Competency Framework Item Node Name Definition: The name or label displayed on the node when this competency framework item is used in a learning map.	Schema.org	CreativeWork	schema.org/description	Reworded
	Ed-Fi	LearningStandard	Description	Identical
	CASE	CF Item	CFItemtype	Identical
	CTDL/ASN			No Match
	PESC			No Match
	HR Open	DefinitionStatementType	statementNames	Identical
CEDS Object: Competency Framework Item Node Name Property: Competency Framework Item Node Name Definition: The name or label displayed on the node when this competency framework item is used in a learning map.	MedBiquito	lom	general.title	Identical
	CASS	Competency	name	Reworded
	Schema.org	CreativeWork	schema.org/name	Identical
	Ed-Fi			No Match

(Draft) Analysis of Ecosystems Mapping for Competency Frameworks

September 27, 2017

The Credentialing Ecosystem Mapping Team developed a process to map the leading US-based technical standards for competency frameworks. This process included mapping across entity and element types and definitions and developing conceptual models. This process enabled the identification of the range of exact to no match across technical standards and a clearer picture of commonality. From this process, this analysis identifies the common objects and properties and offers the opportunity for standards to adopt common definitions and ensure consistent mapping across the standards domains.

Common properties are identified in this document, but that in no way suggests these are minimum or mandatory elements. They merely represent the most common properties between the organizations representing competencies in their specifications. Whether a property is required is a function of the use case being executed.

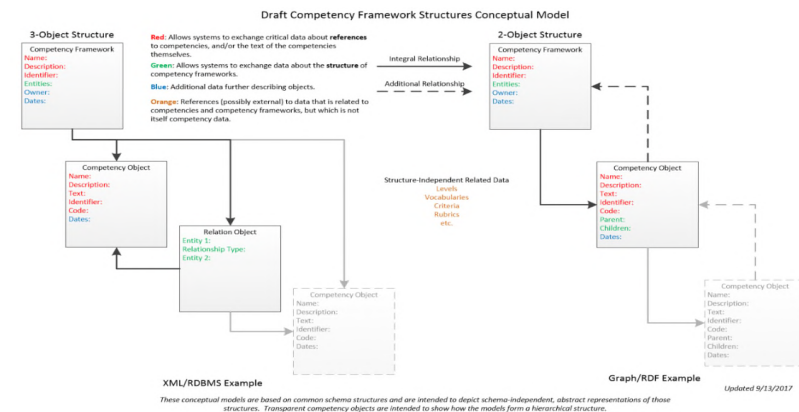
Findings

Data standards & reference implementations that describe elements within competency frameworks have these three entity concepts:

1. Competency Object (item within a competency framework)
2. Competency Framework (and/or Competency Set)
3. Data showing relationship between competency objects

Relationships between competency objects are handled in various ways and may include a separate relationship object.

Within each of these conceptual objects there are common properties used by the various data standards & reference implementations. We'll start by examining common properties of the Competency Object.



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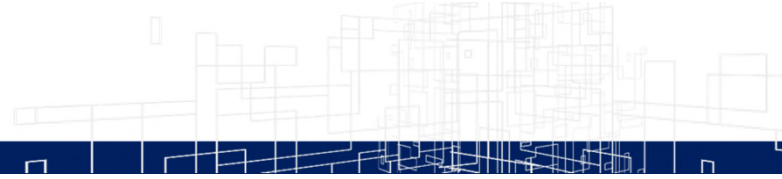
Work Group 3 Objectives

Developing and Analyzing Competencies

- Identify stakeholder use cases that require improvements in how competencies are developed and analyzed.
- Develop plans and propose pilots of how semantic web and artificial intelligence technologies can be used to improve the development and analysis of competency data.



5 Star Linked Open Data



Cost and Analysis Overhead

Interoperability and Usability

5 Star: Open competency data is linked to other organization's data to provide talent marketplace context

4 Star: Open competency data only uses semantic standards from W3C and identifies things with URIs

3 Star: Open competency data uses open formats instead of proprietary formats

2 Star: Competency data is structured and machine-actionable using any format

1 Star: Competency data openly available on the Web in any form with an open license



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Unstructured Course Content Text



Sample Course Description Credit Based

	credits	contact hours
course number	BIOL 111.3.6	
course title	Biology for Science Majors I	
course description	This course is the first of a pair of courses which introduces students to the biological concepts necessary to continue into second year biology. It covers evolutionary theory and its underlying genetic basis, basic cell biology, plant and animal nutrition and energy acquisition. (2.5 credits)	
most successfully complete before enrolling	Prerequisite: Chemistry 11 and one Chemistry 11 or Biology 12 Equivalent Advanced and Physical Level ABE courses are also acceptable.	hours per week seminar hours per week lab hours per week lecture
must be registered in while taking the course or successfully completed prior to entering the course	Corequisite: Recommended: CHEM 111 or 112	



Normalization

Structured Education Competency Models, Frameworks, & Data Standards



CE/Technical
Powered By
Credentia Engine



iNACOL



Machine Translation



Structured Labor Market Competency Models, Frameworks, and Data Standards



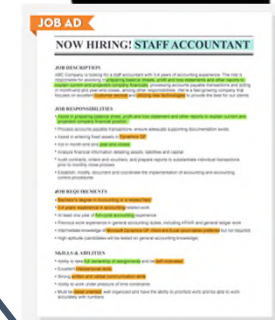
COMPETENCY MODEL
CLEARINGHOUSE

ESCO European Classification of Skills/Competences, Qualifications and Occupations



Normalization

Unstructured Job Postings and Resumes



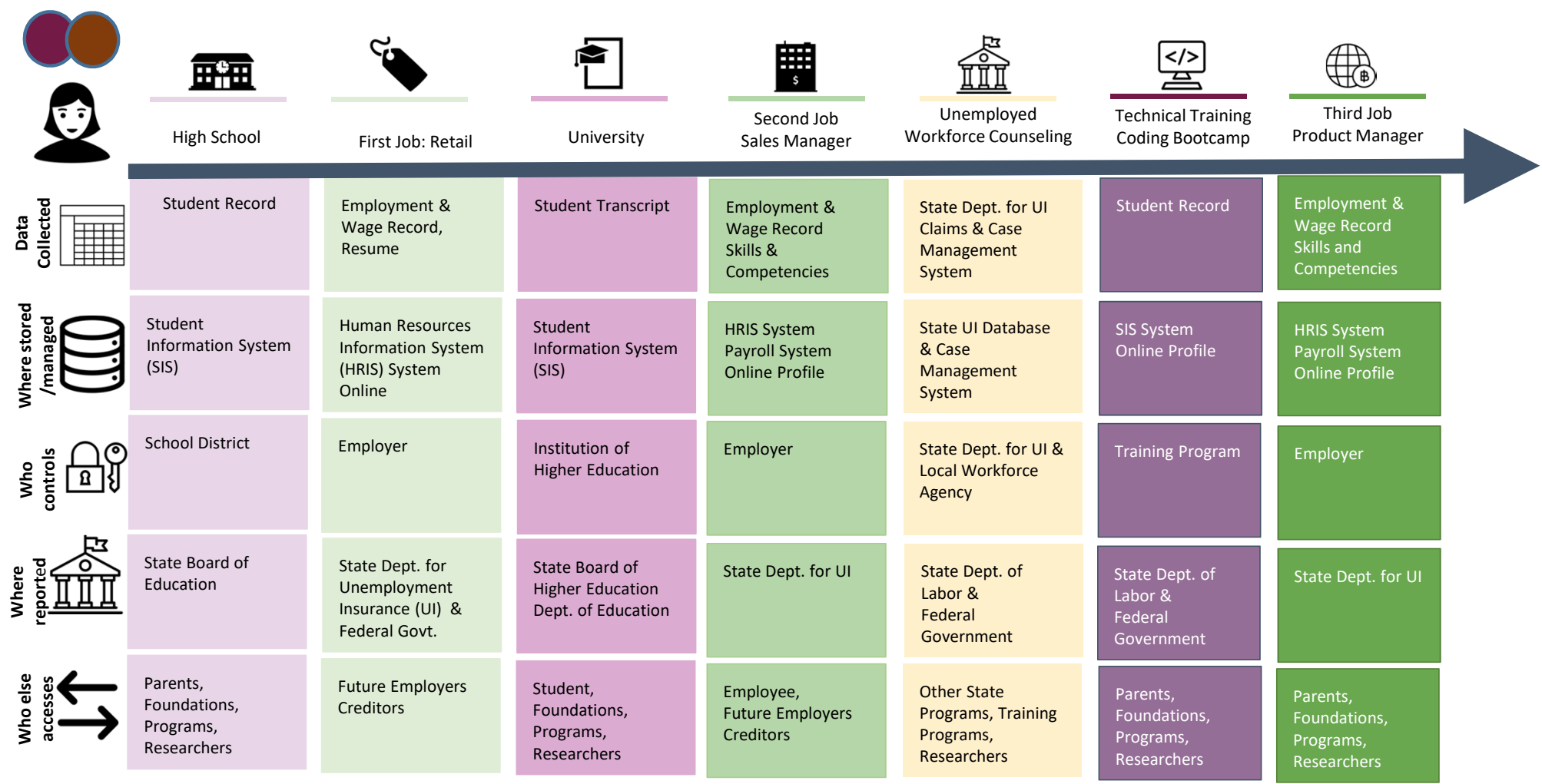
Work Group 4 Objectives

New Architectures & Uses of Linked Individual-Level Data

- Identify stakeholder use cases that have major implications for new trust architectures and protocols.
- Review existing and emerging trust architectures in relation to the use cases and identify key limitations and challenges.
- Identify pilot projects and key stakeholders capable of demonstrating new trust architectures that enable new uses of individual-level data.



Learner/Workers Education & Work Silos

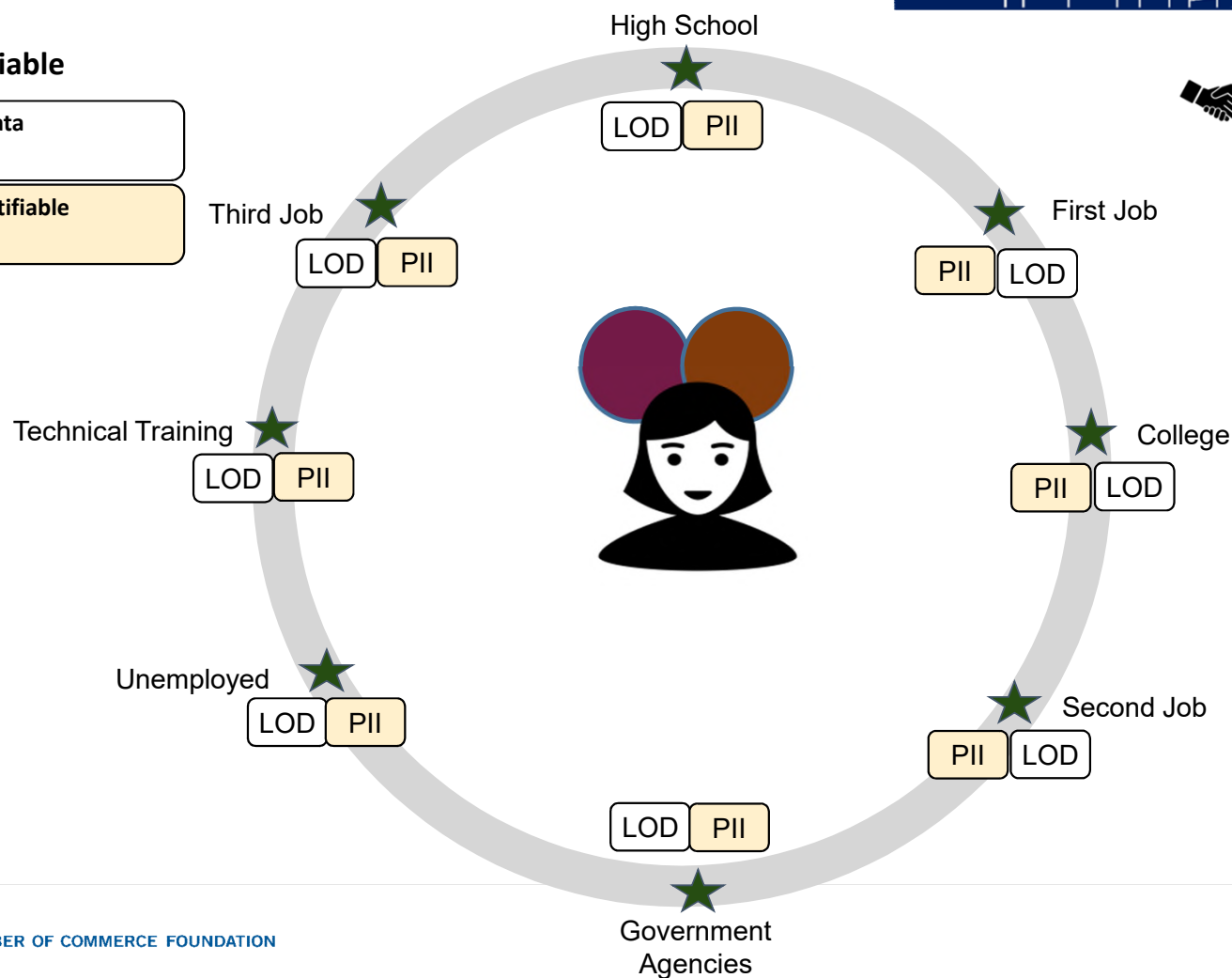


Learner/Worker-Centered Approach

★ Verifiable

Linked Open Data

Personally Identifiable Information



Distributed Lifetime Education & Work Record

Student record

Employment & Wage Record, Resume

Student Transcript

Employment & Wage Record Skills and Competencies

UI Claims Workforce Case Management Record

Student Record

Employment & Wage Record Skills and Competencies



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Implications for a Public-Private Data and Technology Infrastructure

- Public and private sector data and technology experts building on working group reports.
- Public sector
 - Federal education, workforce, and statistical agencies
 - State education, workforce, and statistical agencies
 - Education and workforce policy organizations
- Recommendations for review in next stakeholder forum.



Next Steps

Job Registry

- Review the Clearer Signals paper.
- Participate in webinars and a forum.
- Participate as a pilot site.

T3 Innovation Network

- Review project background paper on the web.
- Join Work Groups.
- Review reports on the website and provide feedback.



MORE INFORMATION



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