ILR Design Workshop

March 9, 2020

T3 Innovation Network
ILR Design Workshop Goals

1. Discuss the characteristics of an ILR pilot

2. Self assess your readiness to implement an ILR pilot

3. Identify resources and partners needed to successfully pilot

4. Address technical interoperability challenges related to records, skills, and verification

5. Identify issues related to privacy, security, and regulation
Rules for Today

1. Do not get bogged down in the semantics
2. Do not push or sell your product
3. Do come with an open mind and spirit of collaboration
4. Defer to the facilitator on who speaks next (be mindful many are participating remotely)
5. Be respectful of your peers and new ways of thinking
6. Today is about learning but also putting stakes in the ground on how to proceed together
<table>
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<tr>
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<th>Session</th>
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<tr>
<td>10:00 a.m. - 10:30 a.m.</td>
<td>Welcome and Introductions</td>
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<td>10:30 a.m. - 11:00 a.m.</td>
<td>ILR Overview</td>
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<td>11:00 a.m. - 11:15 a.m.</td>
<td>Coffee Break</td>
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<tr>
<td>11:15 a.m. - 12:30 p.m.</td>
<td>Self-Assessment</td>
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<td>12:30 p.m. - 1:15 p.m.</td>
<td>Lunch</td>
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<td>1:15 p.m. - 1:30 p.m.</td>
<td>Overview of Afternoon Discussion</td>
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<td>1:30 p.m. - 2:30 p.m.</td>
<td>Data Elements and Definitions</td>
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<td>2:30 p.m. - 3:30 p.m.</td>
<td>Competency/Skill Data</td>
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<td>3:30 p.m. - 4:00 p.m.</td>
<td>Verification</td>
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<td>4:00 p.m. - 4:45 p.m.</td>
<td>Privacy, Regulation, and Security Considerations</td>
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<td>4:45 p.m. - 5:00 p.m.</td>
<td>Meeting Summary and Next Steps</td>
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Welcome and Introductions

- T3 Innovation Network consultants and U.S. Chamber of Commerce Foundation staff
- ILR Community Manager
  Phil Long, RHz Consulting
- ILR Resource Hub Developers
  Chris Purifoy, Learning Economy Foundation (LEF)
  Greg Nadeau, Public Consulting Group (PCG)
Each organization provide the following information:

• Your name and name of your organization

• What is the role(s) or potential role(s) you expect to play in an ILR pilot?
  (e.g., employer, education institution, military, data and technology vendor, standards organization)
Launched in 2018 as an open innovation network

Made up of technology vendors and stakeholders, including business, education, government, nonprofits, etc.

Building the data and technology infrastructure of the future for the talent marketplace, where (1) all learning counts, (2) competencies and skills are currency, and (3) learners are empowered

Use case driven, standards-based, and vendor neutral

Promoting solutions that are open, ethical, and equitable
ILR Background

• Currently a lot of activity with regard to generating records of learning in multiple domains (e.g., higher education, employment, military)

• Need to bridge these activities to ensure data can flow across products and platforms seamlessly without loss of data (i.e., fully interoperable)

• Recent interest spurred by the American Workforce Policy Advisory Board (AWPAB) and their 4 pilots
Coordinating ILRs through the T3 Network

- Scaling ILRs is mostly an infrastructure problem, not a product problem.

- Can be produced by some stakeholders but not all—and sharing them (i.e., machine readable and computable) remains an issue.

- Scale and interoperability is possible through the emerging T3 data infrastructure (e.g., leveraging projects supporting data standards and competencies).

- T3 Network announcement of an ILR initiative at annual meeting (Nov. 2019).
Pilot Goals and Expected Outcomes: Clearly established goals and measures of success

Cross-Domain: Demonstrates data interoperability with at least two partners (e.g., employers, educational institutions, military, nonprofits, other)

Multi-System: Has at least two systems demonstrating interoperability across domains (e.g., one SIS and one HRIS)

Data Standards-Based: Uses data standards for exchange of records that are publicly available and accessible through the ILR Resource Hub

Competency Rich: Includes skills and competencies sourced from an open data resource

Individual-Controlled: Involves the exploration of individual learner access and control of the record
Interoperability Considerations: Transport

Via

Self-Sovereign Learner Wallet

Sender

e.g.
Credential Issuer System,
Employer System,
etc.

Learner Wallet System
(sender and receiver)

Receiver

e.g.
Employment Record,
Transcript,
Credential Assertion,
Competency Assertion,
etc.

System to System

e.g.
Job Application System,
College Application System,
etc.
Interoperability Considerations: Records

Different record types using different data and packaging standards* can share a secure container.

* e.g.
IMS CLR (Open Badges, CASE, QTI, etc.)
HR Open ( Applicant info, Work experience...)
PESC (Transcript, Certificate...)
A4L
...other standards and data not yet in serialization standard.
Different record types using different data and packaging standards can share a secure transport of portable data, if provided basic information such as:

1. **The Payload** (i.e., record type): The content of the ILR. Payloads can use different existing standards or models.
2. **The Wrapper**: Information about the ILR. Minimum info needed about “the Payload”
   a. Id
   b. Record Type
   c. Record Format
   d. Record Signature
   e. Learner Identity Proxy
   f. Issuer Identity
   g. <Security, Verification, & Authentication>
Interoperability Considerations

Three levels of interoperability to be discussed this afternoon:

1. **Record-level** interoperability
   a. My system and your system can both send/receive/read/write the same records

2. **Skill/competency-level** interoperability
   a. My system and your system can both interpret the meaning and value of the achievements in the record

3. **Metadata** interoperability (the “wrapper”)
   a. My system and your system can both verify information about the record
COFFEE BREAK
Finding a group

1. You are part of an ILR pilot
   Create a table with your pilot team

2. You are looking to join an ILR pilot
   Select a pilot to join looking for your kind of partnership

3. You are looking to support ILR pilots
   Select a pilot to join that needs your expertise
Preparing to take the ILR Self-Assessment

Determine which template is right for you (pilot versus resource)
  - In-person attendees are receiving a paper copy of the self-assessment
  - Remote participants can view the self-assessment at: https://bit.ly/2W1oxJz

Work individually or with your team to complete as much of the template as you can (note: you are not expected to have answers for everything)

Be prepared to share your pilot or resource when we reconvene as a larger group

This template or one similar to it may be used in the future to profile ILR pilots in the T3 Network
LUNCH
Overview of Afternoon Discussion

Four Discussion Topics:
- Data Elements and Definitions [60 min]
- Competency/Skill Data [60 min]
- Verification [30 min]
- Privacy, Regulation, and Security Considerations [45 min]

Afternoon Discussion Format:
- Verbal overview of topic
- Group to discuss where the attendees are at as it relates to the topic
- Identify data, technology, resource gaps, and what ILR pilots will need
- Identify priorities for the ILR Resource Hub
Data Elements and Definitions

• Overview of data elements and definitions

• Group to discuss where they are at in terms of knowledge and use of data standards

• Identify data, technology, and resource gaps and what ILR pilots will need to implement a pilot

• Identify data standard documentation priorities for the ILR Resource Hub
<table>
<thead>
<tr>
<th>Data Standard Title</th>
<th>Data Standard Publisher</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common Education Data Standards</td>
<td>CEDS</td>
</tr>
<tr>
<td>Credential Transparency Description Language (CTDL)</td>
<td>Credential Engine</td>
</tr>
<tr>
<td>CTDL Achievement Standards Network (ASN)</td>
<td>Credential Engine</td>
</tr>
<tr>
<td>Assessments</td>
<td>HR Open Standards</td>
</tr>
<tr>
<td>Candidate</td>
<td>HR Open Standards</td>
</tr>
<tr>
<td>Position Opening</td>
<td>HR Open Standards</td>
</tr>
<tr>
<td>Screening</td>
<td>HR Open Standards</td>
</tr>
<tr>
<td>Resume or CV Standard</td>
<td>HR Open Standards</td>
</tr>
<tr>
<td>Open Badges 2.0</td>
<td>IMS Global</td>
</tr>
<tr>
<td>Competencies and Academic Standards Exchange (CASE) 1.0</td>
<td>IMS Global</td>
</tr>
<tr>
<td>Comprehensive Learner Record 1.0 (Candidate Final)</td>
<td>IMS Global</td>
</tr>
<tr>
<td>Schema.org</td>
<td>Shema.org/W3C</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Data Standard Title</th>
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</tr>
</thead>
<tbody>
<tr>
<td>College Transcript</td>
<td>PESC</td>
</tr>
<tr>
<td>Common Credential</td>
<td>PESC</td>
</tr>
<tr>
<td>High School Transcript</td>
<td>PESC</td>
</tr>
<tr>
<td>PESC EDEXCHANGE</td>
<td>PESC</td>
</tr>
<tr>
<td>GEO CODE</td>
<td>PESC</td>
</tr>
<tr>
<td>ELMO</td>
<td>CEN / EMREX (EU)</td>
</tr>
<tr>
<td>EDCI</td>
<td>European Commission</td>
</tr>
<tr>
<td>Europass</td>
<td>European Commission and Cedefop</td>
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<tr>
<td>CCI</td>
<td>Lumina</td>
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<td>Professional Profile</td>
<td>MedBiquitous, AAMC</td>
</tr>
<tr>
<td>Educational Achievement</td>
<td>MedBiquitous, AAMC</td>
</tr>
<tr>
<td>W3C Verifiable Credentials and Distributed Identifier (DID)</td>
<td>W3C</td>
</tr>
<tr>
<td>IEP and Student Demographics</td>
<td>A4L</td>
</tr>
<tr>
<td>Joint Services Transcript*, Universal Learner Record and Total Learning Architecture</td>
<td>DoD</td>
</tr>
</tbody>
</table>

*Standardized PDF format
## MAPPING STATUS

**Revised:** 2020-03-02

### IRL Mappings (PP3)

<table>
<thead>
<tr>
<th></th>
<th>HR Open</th>
<th>IMS Global</th>
<th>PESC</th>
<th>Schema.org</th>
<th>Credential Engine</th>
<th>CEDS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Person</strong></td>
<td>Complete</td>
<td>Complete</td>
<td>Complete</td>
<td>Complete</td>
<td>No Entity</td>
<td>Spine Complete</td>
</tr>
<tr>
<td><strong>Organization</strong></td>
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<td>TBD</td>
<td>TBD</td>
<td>Complete</td>
<td>TBD</td>
<td>Spine Complete</td>
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<tr>
<td><strong>Employment</strong></td>
<td>IP</td>
<td>TBD</td>
<td>IP</td>
<td>TBD</td>
<td>TBD</td>
<td>Spine IP</td>
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<tr>
<td><strong>Course</strong></td>
<td>TBD</td>
<td>TBD</td>
<td>TBD</td>
<td>IP</td>
<td>TBD</td>
<td>Spine IP</td>
</tr>
<tr>
<td><strong>Credential</strong></td>
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<td>TBD</td>
<td>Complete</td>
<td>Complete</td>
<td>Spine TBT</td>
<td>Complete TBT</td>
</tr>
<tr>
<td><strong>Competency</strong></td>
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<td>Complete</td>
<td>Complete</td>
<td>Complete</td>
<td>Complete TBT</td>
<td>Spine TBT</td>
</tr>
</tbody>
</table>

*IP = In Process; TBD = To Be Done, amnd TBT = To Be Transformed (to current template and updated if any of the schemas changed since original mapping)*

### Other Mappings (PP2)

<table>
<thead>
<tr>
<th></th>
<th>HR Open</th>
<th>IMS Global</th>
<th>PESC</th>
<th>Schema.org</th>
<th>Credential Engine</th>
<th>CEDS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Earnings</strong> (T3 P2)</td>
<td>TBD</td>
<td>TBD</td>
<td>TBD</td>
<td>TBD</td>
<td>TBD</td>
<td>Spine TBD</td>
</tr>
<tr>
<td><strong>Program</strong></td>
<td>TBD</td>
<td>TBD</td>
<td>TBD</td>
<td>TBD</td>
<td>TBD</td>
<td>Spine TBD</td>
</tr>
<tr>
<td><strong>Concept Scheme</strong></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Data Standards: ILR Mapping Team
● Overview of competency/skill interoperability
● Group discusses where they are in terms of identifying and using competency and skill data
  ■ Are skills and competencies critical to your ILR use case?
  ■ How are you currently approaching skills/competency data in your ILR?
  ■ What are the implementation challenges your pilot might face with skills and competency data?
● Identify data, technology, and resource gaps and what ILR pilots will need to implement a pilot
● Identify data and resource priorities for ILR Resource Hub
Skill/Competency Statements in ILRs are:

- Machine Readable
- URLs/URIs
- Standard, Linked Data Format (Bonus!)
Challenges with Competency

- T3 Competency Framework Extraction Module (in progress)- Machine actionable competencies using conversion from PDFs and other document formats

- T3 Competency Trust Network (in progress)- search and discover competency frameworks across registries including usage restrictions

- Open competency/skills management tool kits (in discussion)- creating, managing and publishing competencies/skills with context and understanding of meaning
Competency/Skill Data Resource #1: OCN

Node Types:
- Framework Provider (Registry/Aggregator | ≥ 10)
- Framework Provider (Long Tail | < 10)
- Listening Node
- Research Node

Node Functions:
- OCF Indexer
- Rosetta Stone (Schema Translation)

Node Services To:
- Human Resource Systems
- Product Supports
- Registries of Linked Open Data
- Government Data systems
- Data Analytics Systems
- Commercial Platforms
- Reference Framework Systems
- Credentialing Organization systems

Index Update & Data Propagation:

E.g., “Gossip Protocol”:
1. For changes to its data, OCF node A randomly selects a node from a list of OCF nodes known to it—e.g., OCF node D;
2. OCF node A sends a message to D containing its framework change data;
3. Node D sends back to A a response containing changes to its data;
4. Node A and D update their data set by merging it with the received data;
5. Nodes A and D each randomly select another node from a list of nodes known to them and exchange their change data;
6. Etc. etc.
Answer Three Questions at your Table

- Are skills and competencies critical to your ILR use case?
- How are you currently approaching skills/competency data in your ILR?
- What are the implementation challenges your pilot might face with skills and competency data?
Verification

- Overview of verification

- Group to discuss where they are at in terms of verification protocols

- Identify data, technology, and resource gaps and what ILR pilots will need to implement a pilot

- Identify information and resource priorities for the ILR Resource Hub
Overview: Verification

• Record Verification
  ○ Factors
    ■ Has it been tampered with?
    ■ Is it authentic?
  ○ Examples:
    ■ W3C Verifiable Credentials
    ■ IMS Open Badges/CLR

• People/Org Verification
  ○ Methods
    ■ DID/SSI
    ■ Vendor, local, state or federal IDs
  ○ Example: Open Badges 2.1 and DIDs

• Availability, Longevity, and Sustainability
Privacy, Regulation, & Security Considerations

• Overview of privacy, regulation, and security considerations

• Group to discuss where they are in terms of privacy, regulations, and security considerations

• Identify data, technology, and resource gaps and what ILR pilots will need to implement a pilot

• Identify protocols and additional resource priorities for the ILR Resource Hub
Overview: Privacy, Regulation, & Security Considerations

• Regulation
  ○ Locale
    ■ California Consumer Privacy Act (CCPA)
    ■ EU General Data Protection Regulation (GDPR)
  ○ Other: FERPA, COPPA, PCI, HIPAA

• Privacy
  ○ Minimum compliance vs comprehensive strategy
    ■ DCC decision to align with GDPR
  ○ Examples: opt-in/opt-out, de-identification

• Security
Meeting Summary and Next Steps

• Prioritizing requests of the T3 Network and ILR Resource Hub

• Identifying ILR pilot partner teams and resource contributors

• Staying flexible and agile as we work through a number of issues, including how we talk about the work

• Organizing a follow-up webinar
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