Advancing Skills-Based Education and Hiring Through the Open Skills Network

March 17, 2021
NICE Framework News!

NICE Framework Competencies: Call for Comments
Submit your feedback by May 3, 2021

Visit the web page to view the draft documents and instructions on how to submit comments.

NICE Webinar: Advancing Skills-Based Education and Hiring Through the Open Skills Network
<table>
<thead>
<tr>
<th>Topic</th>
<th>Presenter</th>
</tr>
</thead>
<tbody>
<tr>
<td>· Introductions</td>
<td>Rodney Petersen, Director of the National Initiative for Cybersecurity Education (NICE), NIST</td>
</tr>
<tr>
<td>· About the Open Skills Network</td>
<td>Deborah Everhart, Chief Strategy Officer, Credential Engine</td>
</tr>
<tr>
<td>· Business perspective</td>
<td>Phil Komarny, Vice President of Innovation, Salesforce</td>
</tr>
<tr>
<td>· Credential and skills transparency perspective</td>
<td>Deborah Everhart, Chief Strategy Officer, Credential Engine</td>
</tr>
<tr>
<td>· Education perspective</td>
<td>Gwendolyn Britton, Academic Associate Vice President, Southern New Hampshire University</td>
</tr>
<tr>
<td>· Questions and Answers</td>
<td>All</td>
</tr>
</tbody>
</table>
Questions and Answers

If you have questions about today's presentation or the future of skills-based learning and hiring, please add it to the Q&A box.
The Open Skills Network (OSN)
Why Do Skills Matter?

- Skills describe work in granular, modular, and flexible ways
- Education and career pathways can be modularly defined and adapted using skills
- Skills give us more transparency for connecting job descriptions, resumes, and educational credentials
What are “Open Skills”? 

- As people move between learning and jobs, they need to be able to communicate their skills in different contexts.
- Employers and educators need to be able to understand skills that people bring from somewhere else.
- Proprietary and siloed skills definitions don’t allow learning and hiring processes to flow through thriving ecosystems.
**What is the Open Skills Network?**

**Our Vision**
- The Open Skills Network (OSN) is a coalition of employers, education providers, military, and other stakeholders dedicated to advancing skills-based education and hiring. The OSN envisions a world where individuals are trained for in-demand skills and hired for what they can do.

**Our Goals**
- Create the foundation to advance a more equitable labor market.
- Empower learner-workers to understand and communicate the value of their skills, talent, and experiences.
- Eliminate barriers to implementing skill-based education and hiring practices across industry sectors at scale.
What is the Open Skills Network Doing?

Building the Skills Ecosystem

- Implementing Rich Skills Descriptors (RSDs)
- Developing open toolsets (including the Open Skills Management Tool)
- Creating a national network of skills libraries
- Developing a skills community of practice
What are “Rich Skill Descriptors” (RSDs)?

- RSDs enable us to explore the details of a skill and quickly get the contextual information needed to understand a particular skill, ensuring all users of skills are working from the same definitions.

- Each RSD has a unique web address - anyone can create links between skills and other data - enabling the combination of data from multiple diverse sources.

- RSDs are both humanly readable (like exploring information related to my own skills) and machine-actionable (like apps that recommend learning opportunities based on my skills).
To help organizations develop and collaborate around skills libraries, the OSN is developing a free, open source tool to facilitate the production of RSD-based open skills libraries, called the Open Skills Management Tool (OSMT).

Existing programs, curricula, and job descriptions can all use these open libraries as “Rosetta stones” for understanding skills in a portable, machine-actionable way.
Library organized by skill categories with truncated metadata for quick visibility

Create RSDs and collections

Simple and advanced search options

Act on one or more RSDs

White labeled header
OSN Progress to-date

- Officially launched September 2020
- 800+ network members, 350+ partnered organizations
- 4 Work Groups: Governance, Technical, Market Leadership, and Policy
- Skills sector pilots March-June 2021
Goal: Develop RSD collections with collaborative partners through pilots that result in RSDs that can be published within OSMT and released in June 2021. The published RSD collections will empower organizations to access and use open skills data for their own use cases.

Pilot Objectives:

- Validate RSD data schema across multiple industries
- Develop Open Skills Libraries
- Create recommendations and practices for use of OSMT
- Allow early users to test OSMT functionality for their institutions and needs
- Identify opportunities for continuous improvement in process and tools
Why this work is important

Equitable pathways in the global shift to skills-based learning and hiring: a business perspective
# The Salesforce Economy

**Global Jobs**

4.2M

New Salesforce economy jobs by 2025

**Global Economic Impact**

$1.2T

New business revenue by 2025

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<table>
<thead>
<tr>
<th>Region</th>
<th>Jobs</th>
<th>Revenue</th>
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<tbody>
<tr>
<td><strong>Americas</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Canada</td>
<td>33K</td>
<td>$20B</td>
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<tr>
<td>United States</td>
<td>869K</td>
<td>$514B</td>
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<td><strong>Asia Pacific</strong></td>
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<tr>
<td>Japan</td>
<td>200K</td>
<td>$110B</td>
</tr>
<tr>
<td>Singapore</td>
<td>9K</td>
<td>$6B</td>
</tr>
<tr>
<td><strong>Rest of World</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1.3M</td>
<td>$98B</td>
</tr>
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Source: IDC white paper sponsored by Salesforce, "The Salesforce Economic Impact: 4.2 Million New Jobs, $1.2 Trillion of New Business Revenues from 2019 to 2024," October 2019. The statements are based on the data from 2019 through 2024.
The Accelerated Digital Skills Gap

Companies

Job Seekers

Bot Building
Machine Learning
Low Code
Remote Collaboration
Digital Processes
Online Engagement
Process Automation
OPEN SKILLS NETWORK

Catalyst Of COVID Verifiable Individual Data
Vaccine Cloud

- Integration
- Digital Health Credentials
- Inventory
- Site & Staffing
- Payment
- Scheduling
- Consent
- Notification
- Outcome Monitoring
- Command Center
- Vaccine Administration
- Vaccinated

Billions of Recipients

Scale | Speed | Agility | Compliance

Experience
- Apps
- Web
- Channels
- Bots

Intelligence
- Automation
- Workflow
- Personalization
- Low Code

Single Source of Truth
- Data
- Streams
- Segments
- Privacy
Skills are Powering the Digital Imperative

- Shift to Digital Channels
- Growth of Digital Communities
- Importance of Digital Apps
- Support for Digital Employees
Trailhead
Learn on-demand at your own pace for free

Trailhead Platform
Free, gamified learning platform that empowers anyone to skill up for the future

Trailhead GO
Learn marketable skills from anywhere on the Trailhead GO mobile app

Trailhead LIVE
Reinvented classroom experience with live-streamed expert-led classes on today’s most in-demand skills
Trailblazers are Growing their Careers with Trailhead

1/3
found a new job or made a career change

50%
Got a promotion or raise

2/3
More productive because of Trailhead

Source: Valoir, June 2020
Earn Resume-Worthy Credentials

Skill-based Badges

800+ badges that showcase your knowledge in a specific topic area

Role-based Credentials

Salesforce Certifications - globally recognized credentials that give you a competitive edge

Superbadges - capstone projects that put your skills to the test in real-world business scenarios
Trailblazers are Reaching New Milestones

33M Badges Earned

2.8M Learners

Trailhead Skills Span the Salesforce Ecosystem

People
- Virtual Collaboration
- Public Speaking Skills
- Fearless Teaming
- Equality Ally Strategies
- Storytelling & Communication

Salesforce
- Salesforce Platform
- Salesforce Customer 360
- CRM
- Sales Cloud
- Service Cloud

Technologies
- Flow Builder
- Einstein Pots
- Process Automation
- Digital Transformation
- Artificial Intelligence

Learn your way to your next opportunity
**Trailblazer.me Profile**

**Showcase your experience on your reinvented resume**

**Unified Profile**

Single view of your expertise and experience across Trailhead, Trailblazer Community, AppExchange and more

**Skills Graph**

Personalized graph that showcases all of a Trailblazer’s abilities that badges represent

**Vanity URL**

Custom short URL that links back to your Trailblazer.me profile and can be shared with future employers
A Personal and Trusted Skills Profile

Capture, Evaluate and Validate

Capture
Open Badges

Evaluate
Open Skills

Verify
Verified Credentials
Chart Your Own Learning Journey
Trailhead provides learning for every stage of your career

Expert-Led Training
Get Salesforce Certified
Higher Education
Free On-Demand Learning
Skill up for the future

Higher Education
Get Salesforce Certified
Expert-Led Training
Free On-Demand Learning
Skill up for the future
Credential Engine and the Credential Transparency Description Language (CTDL)

Linked Open Data infrastructure for credential and skills transparency
Credential Engine: Our Mission and Vision

Credential Engine is a non-profit whose mission is to map the credential and skills landscape with clear and consistent information, fueling the creation of resources that empower people to find the pathways that are best for them.

We envision a future where millions of people worldwide have access to information about credentials and skills that opens their eyes to the full range of opportunities for learning, advancement, and meaningful careers.
● **Who We Are**
  ○ Non-profit
  ○ Community built
  ○ Vendor agnostic
  ○ Data Driven
  ○ Mission oriented around credential, skills, and pathways transparency

● **What We Do**
  ○ Advocate for credential and skills transparency
  ○ Develop and support linked open data schemas
  ○ Provide open, interoperable infrastructure
  ○ Build and mobilize partnerships
  ○ Provide expertise and services

● **What We Do NOT Do**
  ○ Collect or verify personally identifiable information
  ○ Issue credentials
  ○ Verify issued credentials
Credential Engine’s Open Technologies

**Community** – A wide range of stakeholders provide and receive technical assistance and other services to both publish to the Registry and consume the data it houses. *Credentialing bodies, developers, and other users have access to resources such as do-it-yourself guides, best practices, and technical support.*

**Credential Transparency**
- **Description Language**
  Common language that describes key features of credentials and skills.

**Publishing Tools**
- After creating a user account, organizations use the API or any of the Publishing System tools to convert information to CTDL and publish to the Registry.

**Credential Registry**
- More than a database, the Registry collects and connects credential and skills data described with CTDL and supports an open applications marketplace.

**Credential Finder**
- A tool to view and explore the information stored in the Registry.

[https://credreg.net](https://credreg.net)
Credentialing Organizations

Publish credentials and skills in CTDL

Issue credentials to learners

Issued credentials contain CTDL and URIs

Credential Earners

Credential Registry (CTDL)

Accredit, approve, endorse, recognize credentials and/or credentialing organizations

Publish credentials, skills, and jobs in CTDL

Quality Assurance Entities

Publish credentials and skills in CTDL

Employers

Use CTDL data to hire, upskill, and re-skill
Digital Badges: Baked-in Linked Open Data

Alignments, including URIs to the Registry

Earning Criteria

Tags

Digital Badges: Baked-in Linked Open Data
Supporting Rich Descriptions of Credentials and Skills

- Credential issuer information
- Learning opportunities and assessments
- Skills and competencies earned
- Alignments to quality assurance frameworks
- Connections, such as stacking of credentials and combining of skills
- Accreditation and other third-party quality recognitions
- Occupational alignment
- Prerequisites, requirements, cost, and time to earn
- Jurisdiction and revocation where applicable
- Transfer value to other institutions
- Components of education and career pathways
- Bridges to jobs, work roles, and tasks
- Aggregate outcome and labor market information
Credential Transparency Description Language (CTDL)

A linked open data schema modeled on the semantic web for transparency and comparability of credential and skill information.

https://credreg.net
NICE Cybersecurity Workforce Framework: Skills
U.S. Department of Commerce National Institute of Standards and Technology (NIST)

The National Initiative for Cybersecurity Education (NICE) Cybersecurity Workforce Framework components provide the means to identify work roles and related knowledge, skills, abilities and tasks of cybersecurity work. Skill is often defined as an observable competence to perform a learned psychomotor act. Skills in the psychomotor domain describe the ability to physically manipulate a tool or instrument like a hand or a hammer. Skills needed for cybersecurity rely less on physical manipulation of tools and instruments and more on applying tools, frameworks, processes, and controls that have an impact on the cybersecurity posture of an organization or individual. Current version as of January 18, 2018.

NICE Cybersecurity Workforce Framework: Abilities
U.S. Department of Commerce National Institute of Standards and Technology (NIST)

The National Initiative for Cybersecurity Education (NICE) Cybersecurity Workforce Framework components provide the means to identify work roles and related knowledge, skills, abilities and tasks of cybersecurity work. Ability is defined as competence to perform an observable behavior or a behavior that results in an observable product. Current version as of January 18, 2018.

NICE Cybersecurity Workforce Framework: Tasks
U.S. Department of Commerce National Institute of Standards and Technology (NIST)

The National Initiative for Cybersecurity Education (NICE) Cybersecurity Workforce Framework components provide the means to identify work roles and related knowledge, skills, abilities and tasks of cybersecurity work. A Task in the Cybersecurity Workforce Framework is a specific defined piece of cybersecurity work that, combined with other identified Tasks, compose the work in a specific specialty area or work role. Current version as of January 18, 2018.

NICE Cybersecurity Workforce Framework: Knowledge
U.S. Department of Commerce National Institute of Standards and Technology (NIST)

The National Initiative for Cybersecurity Education (NICE) Cybersecurity Workforce Framework components provide the means to identify work roles and related knowledge, skills, abilities and tasks of cybersecurity work. Knowledge is a body of information applied directly to the performance of a function. Current version as of January 18, 2018.
NICE Cybersecurity Workforce Framework: Skills

U.S. Department of Commerce National Institute of Standards and Technology (NIST)

Description
The National Initiative for Cybersecurity Education (NICE) Cybersecurity Workforce Framework components provide the means to identify workforce requirements as an observable competence to perform a learned psychomotor act. Skills in the psychomotor domain describe the ability to physically manipulate tools and instruments and more on applying tools, frameworks, processes, and controls that have an impact on the cybersecurity workforce.

Explore this Framework

Connections

Referenced By Learning Opportunities
IT-212 Introduction to Computer Networks
Students will learn the basics of interconnectivity of computing systems. With fundamental networking knowledge, students will design a basic network architecture.

Related Competency Frameworks
Information Technologies (BS)
BS.ITE: Information Technologies (BS)
Education and career pathways with CTDL and RSDs

- Education and career pathways identify one or more starting points and various components along routes with options for arriving at a destination goal.
- Any pathway can have multiple options to help a person achieve their education and career goals.
- CTDL supports designing and publishing education and career pathways and related RSDs as linked open data.

<table>
<thead>
<tr>
<th>Education and Career Pathway CTDL Components</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessment</td>
</tr>
<tr>
<td>Basic</td>
</tr>
<tr>
<td>Co-curricular</td>
</tr>
<tr>
<td>Competency/Skill/RSD</td>
</tr>
<tr>
<td>Course</td>
</tr>
<tr>
<td>Credential</td>
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<tr>
<td>Extracurricular</td>
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<tr>
<td>Job</td>
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<tr>
<td>Work Experience</td>
</tr>
</tbody>
</table>
RSDs and CTDL Pathways in Cybersecurity

Work in progress examples that will be widely available and shareable soon
What kind of cyber jobs are there?
What does that mean?
On-ramp to explore and discover
On-ramp to explore and discover

IT-253 Computer Systems Security
Southern New Hampshire University
Learning Opportunity

Basic Info
- Connect to this Learning Opportunity

Location Info
- Available Online

About this Learning Opportunity
- Owned By

Audience
- Bachelor

More Info
Competencies
- 3 Teaches 3 Competencies

Connections
- Required For 1 Credential
- Condition Target For 3 Credentials
- Preparation From 1 Credential

Credentials
- Security Specialist Superbadge
  - Salesforce
    - Superbadges in Trailhead show that you can take what you've learned and apply it to advanced, real-world business requirements. Concepts Tested in This Superbadge: Data Security, User Authentication, User Permissions

Conditions
- Digital Badge
- Description:
  - Superbadges in Trailhead show that you can take what you've learned and apply it to advanced, real-world business requirements.
  - Concepts Tested in This Superbadge:
Foundational pathways (on-ramps)
Alternative pathways

Description

IT Networking Specialist analyze, troubleshoot and evaluate computer network problems. More advanced IT pros may be responsible for building and designing communication networks as well. They play an important role in maintaining an organization’s network and keeping them safe and secure through both hardware configuration and end-user training. Network specialists and administrators are responsible for day-to-day operations and network architects and engineers design and build local area networks (LANs), wide area networks (WANs), and intranets. Depending on the size of the company, these roles may be combined.

Occupations

IT Networking Specialist, Network and Computer Systems Administrators

Progression Models

IT Networking Specialist Progression Model (CompTIA)

Pathway Components

Some components require one or more other components via conditions. Each condition has a + button. Click the button to show the components that are referenced by the condition.

Beginner

CompTIA A+

Credential/Component: Certification

Source Type: View Source

Subject/WikiPage: View Source

Description:
A+ is the starting point for a career in IT. The performance-based exams certify foundational IT skills across a variety of devices and operating systems.

CompTIA Network+

Credential/Component: Certification

Source Type: View Source

Subject/WikiPage: View Source

Description:
Network+ certifies the essential skills needed to confidently design, configure, manage and troubleshoot wired and wireless networks.

CompTIA Security+

Credential/Component: Certification

Source Type: View Source

Subject/WikiPage: View Source

Description:
Security+ provides a global benchmark for best practices in IT network and operational security, one of the fastest-growing fields in IT.

Requires 1 of 1

Requires 1 of 1
Stackable Pathways
Behind the scenes - alignment magic
Open shared libraries
An open skills infrastructure is critical to support the future of work and the development of agile and robust talent pathways where all individuals have equitable opportunities to achieve their career goals.

Join the Open Skills Network

OSN membership starts with like-minded organizations and individuals like yourself who are working to build the skills ecosystem. As an open network, membership has no associated cost or fee.

Contribute your expertise and resources

The OSN is committed to the democratization of skills as a sharable, interoperable currency through the practical application of open, accessible, machine-actionable skills data.
THANK YOU FOR JOINING US TODAY

www.openskillsnetwork.org
Q & A
Thank You for Joining Us!

Upcoming Webinar: Getting Girls into STEM and Cybersecurity - Pathways to Progress

When: Wednesday, April 21, 2-3PM ET


[nist.gov/nice/webinars](https://nist.gov/nice/webinars)