

NICE Webinar Series

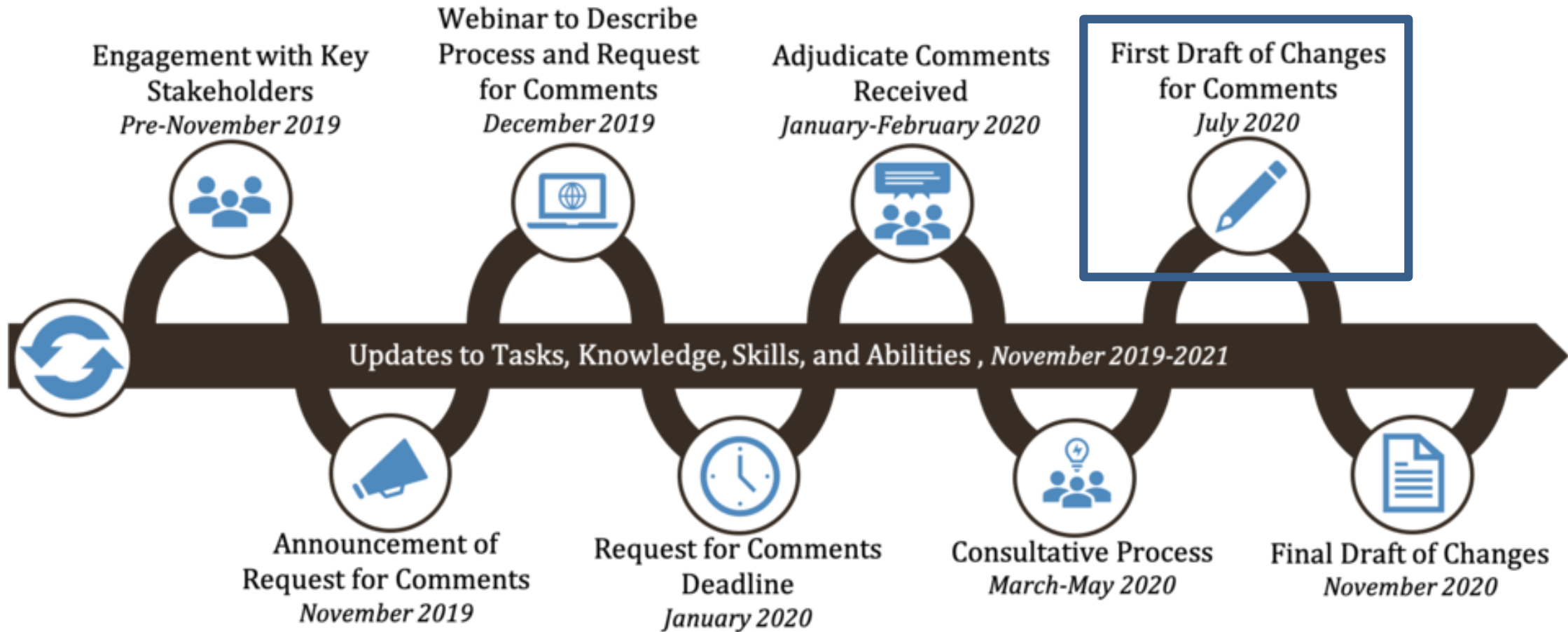
NATIONAL INITIATIVE FOR CYBERSECURITY EDUCATION



What's New – Revisions to the NICE Framework

July 15, 2020

Timeline of Framework Updates

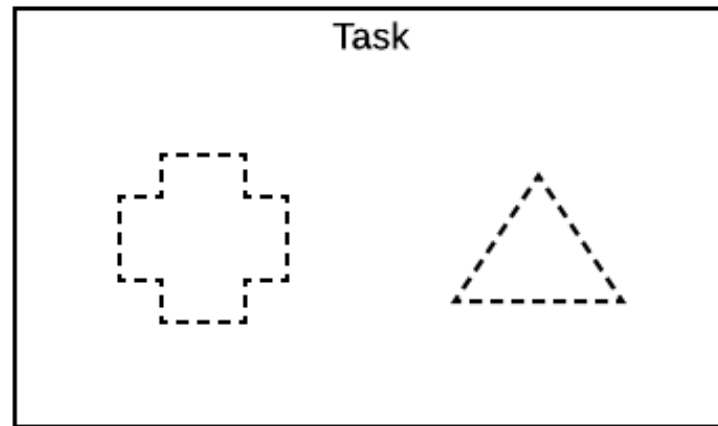


Attributes of the New Revision

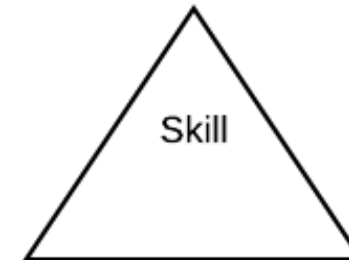
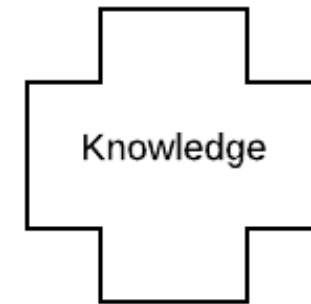
- **Agility**— The NICE Framework enables organizations to keep pace with a constantly evolving ecosystem.
- **Flexibility**— The NICE Framework enables organizations to account for the organization's unique operating context.
- **Interoperability**— The NICE Framework enables organizations to exchange workforce information using a common language.
- **Modularity**— The NICE Framework enables organizations to communicate about other workforces within an enterprise (e.g., Privacy, Artificial Intelligence , etc.).

Feature: “The Work” and “The Learner”

Describes the work



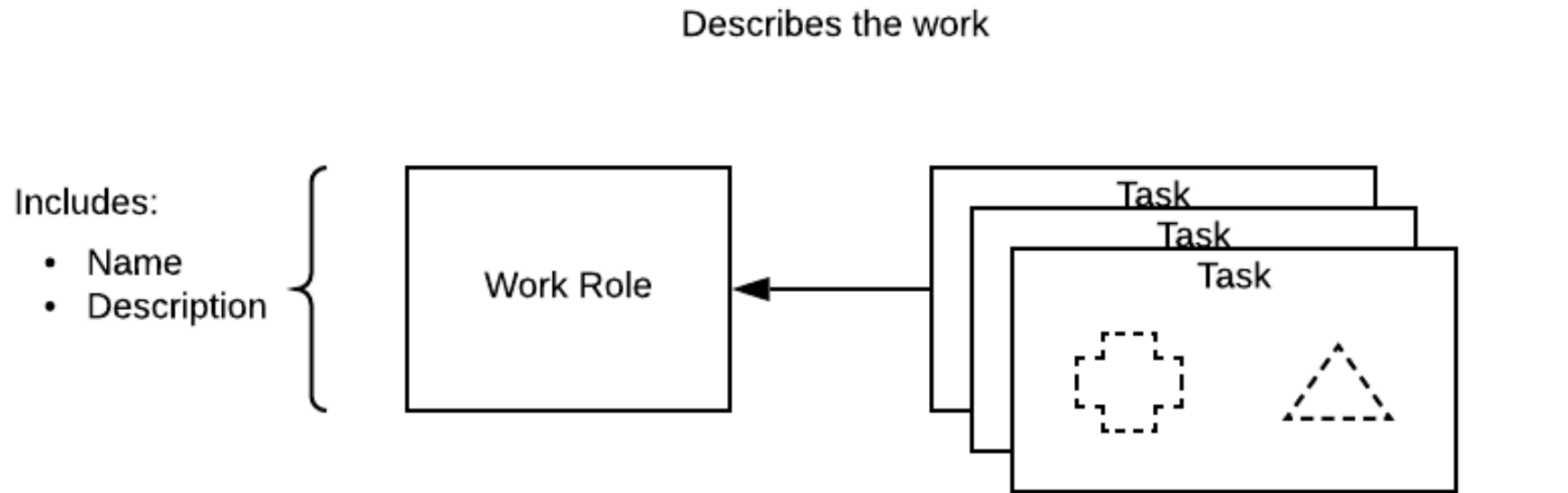
Describes the learner



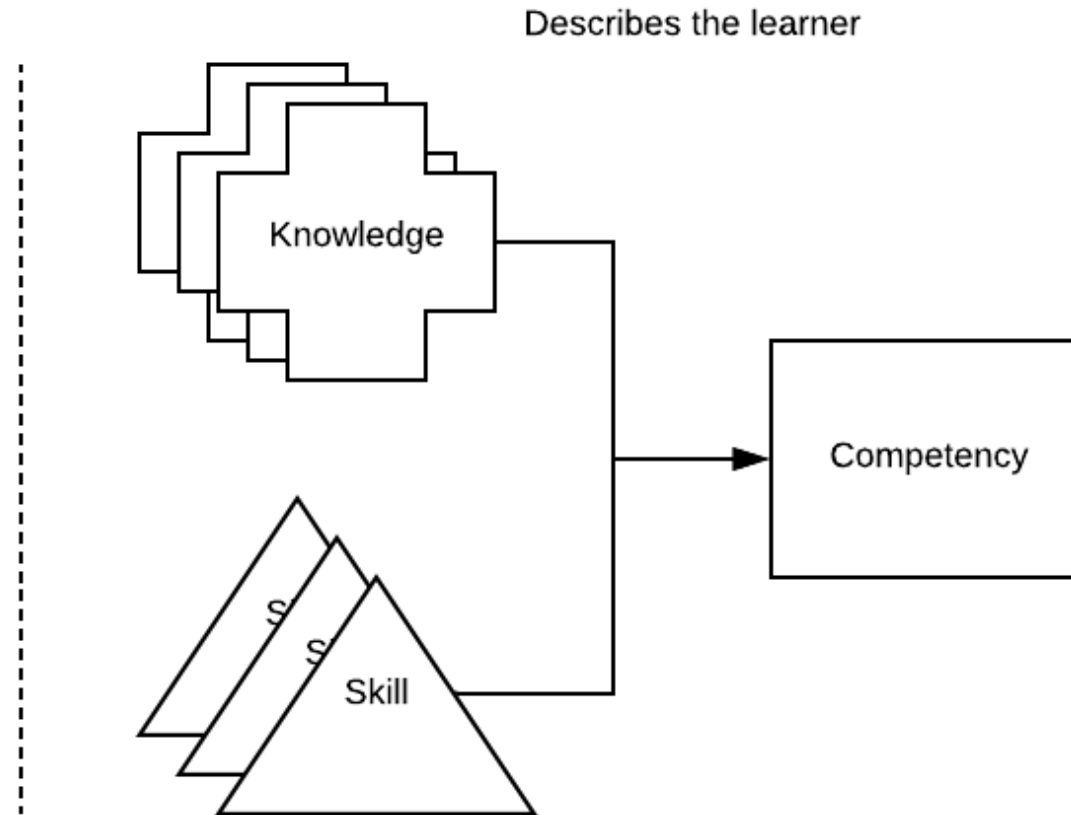
Feature: Building Blocks

- Task: an activity that is directed toward the achievement of objectives
- Knowledge: a retrievable set of concepts within memory
- Skill: the capacity to perform an observable action

Feature: Work Roles

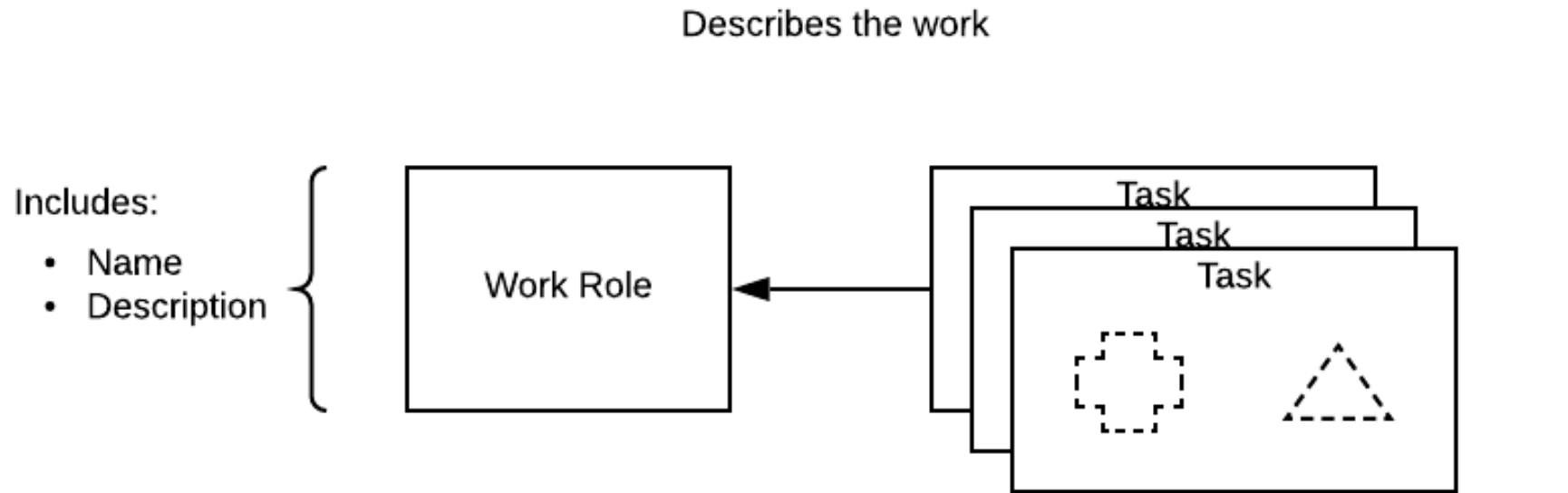


Feature: Competencies



Q & A

Feature: Work Roles





Pam Frugoli

Senior Workforce Analyst

Employment and Training
Administration

U.S. Department of Labor



U.S. DEPARTMENT OF LABOR

Use of NICE Framework by Private Sector and Role of Employment and Training Administration

- The Employment and Training Administration (ETA) and industry partners collaborate to develop and maintain dynamic models of the foundation and technical competencies needed in various industries and sectors of the American economy.
- The goal is to promote an understanding of the skill sets and competencies that are essential to educate and train a globally competitive workforce.
- The models are a resource to inform collaboration among industry leaders, educators, economic developers, and public workforce investment professionals to:
 - **Identify specific employer skill needs**
 - **Develop competency-based curricula and training models**
 - **Develop industry-defined performance indicators, skill standards, or certifications**
 - **Develop resources for career exploration and guidance**



U.S. DEPARTMENT OF LABOR

DOL-sponsored online resources

Occupational Information Network (O*NET) system

The screenshot shows the O*NET OnLine homepage. At the top left is the O*NET logo and the text "O*NET OnLine". To the right is an "Occupation Quick Search" bar. Below the header is a navigation menu with "Help", "Find Occupations", "Advanced Search", "Crosswalks", "Share", and "O*NET Sites". The main content area features a large banner with a construction crane and the text "Build your future with O*NET OnLine." Below this banner are several informational boxes: "What's New?" with a "Learn More" button, "I want to be a..." with a "Find It Now" button, and "ATTN: VETERANS" with a "Get Started" button. At the bottom, there are three search filters: "Find Occupations", "Advanced Search", and "Crosswalks".

Competency Model Clearinghouse

The screenshot shows the Competency Model Clearinghouse homepage. At the top left is the "COMPETENCY MODEL CLEARINGHOUSE" logo and the "careeronestop" logo. To the right is a search bar labeled "Search CareerOneStop". Below the header is a navigation menu with "Get Started", "Industry Models", "Models in Action", "Build a Model Tool", and "Find Resources". The main content area features a large banner with a pyramid diagram and the text "View an Industry Model" followed by a list of industries: "Geospatial Technology", "Advanced Manufacturing", "Fundamentals of Health Care", "Mechatronics", "Renewable Energy", and "and others". Below the banner are four buttons: "Get Started", "Industry Models", "Models in Action", and "Build a Model Tool". At the bottom, there are three columns of content: "Latest Industry Models", "Do It Yourself", and "What's New", each with a list of items.



O*NET Focus on Careers and Occupations

O*NET	NICE Cybersecurity Framework
974 <u>Occupations</u>	52 Work Roles
41 Knowledge Areas	614 Knowledge statements
35 Skills	359 Skills
55 Abilities	119 Abilities
19,566 Tasks	928 Tasks

The NICE Framework is an unparalleled **in-depth** resource



O*NET Profile for Information Security Analysts

O*NET OnLine Occupation Quick Search:

Help Find Occupations Advanced Search Crosswalks Share O*NET Sites

Summary Report for: 15-1122.00 - Information Security Analysts Updated 2020
Bright Outlook

Plan, implement, upgrade, or monitor security measures for the protection of computer networks and information. May ensure appropriate security controls are in place that will safeguard digital files and vital electronic infrastructure. May respond to computer security breaches and viruses.

Sample of reported job titles: Data Security Administrator, Information Security Officer, Information Security Specialist, Information Systems Security Analyst, Information Systems Security Officer, Information Technology Security Analyst (IT Security Analyst), Information Technology Specialist, Network Security Analyst, Security Analyst, Systems Analyst

View report: **Summary** Details Custom

[Tasks](#) | [Technology Skills](#) | [Related Occupations](#) | [Wages & Employment](#) | [Job Openings](#) | [Additional Information](#)

Tasks
5 of 12 displayed

- Develop plans to safeguard computer files against accidental or unauthorized modification, destruction, or disclosure and to meet emergency data processing needs.
- Monitor current reports of computer viruses to determine when to update virus protection systems.
- Encrypt data transmissions and erect firewalls to conceal confidential information as it is being transmitted and to keep out tainted digital transfers.
- Perform risk assessments and execute tests of data processing system to ensure functioning of data processing activities and security measures.
- Modify computer security files to incorporate new software, correct errors, or change individual access status.

[back to top](#)

Technology Skills
5 of 51 displayed [Show 5 tools used](#)

- Development environment software** — Apache Ant 🔥; Go 🔥; Microsoft Visual Studio 🔥; National Instruments LabVIEW 🔥
- Network monitoring software** — IBM QRadar SIEM; Nagios 🔥; Symantec Blue Coat Data Loss Prevention; Wireshark 🔥
- Operating system software** — Linux 🔥; Microsoft Windows Server 🔥; Shell script 🔥; UNIX 🔥
- Transaction security and virus protection software** — HP Webinspect; McAfee; Portswigger BurP Suite; Symantec 🔥

Wages & Employment Trends

Median wages (2019) \$47.95 hourly, \$99,730 annual

State wages Select a State

Local wages ZIP Code:

Employment (2018) 112,300 employees

Projected growth (2018-2028) ■■■ Much faster than average (11% or higher)

Projected job openings (2018-2028) 12,800

State trends Select a State

Top industries (2018) [Professional, Scientific, and Technical Services](#)
[Finance and Insurance](#)

Source: Bureau of Labor Statistics [2019 wage data](#) and [2018-2028 employment projections](#). "Projected growth" represents the estimated change in total employment over the projections period (2018-2028). "Projected job openings" represent openings due to growth and replacement.

[back to top](#)

Job Openings on the Web

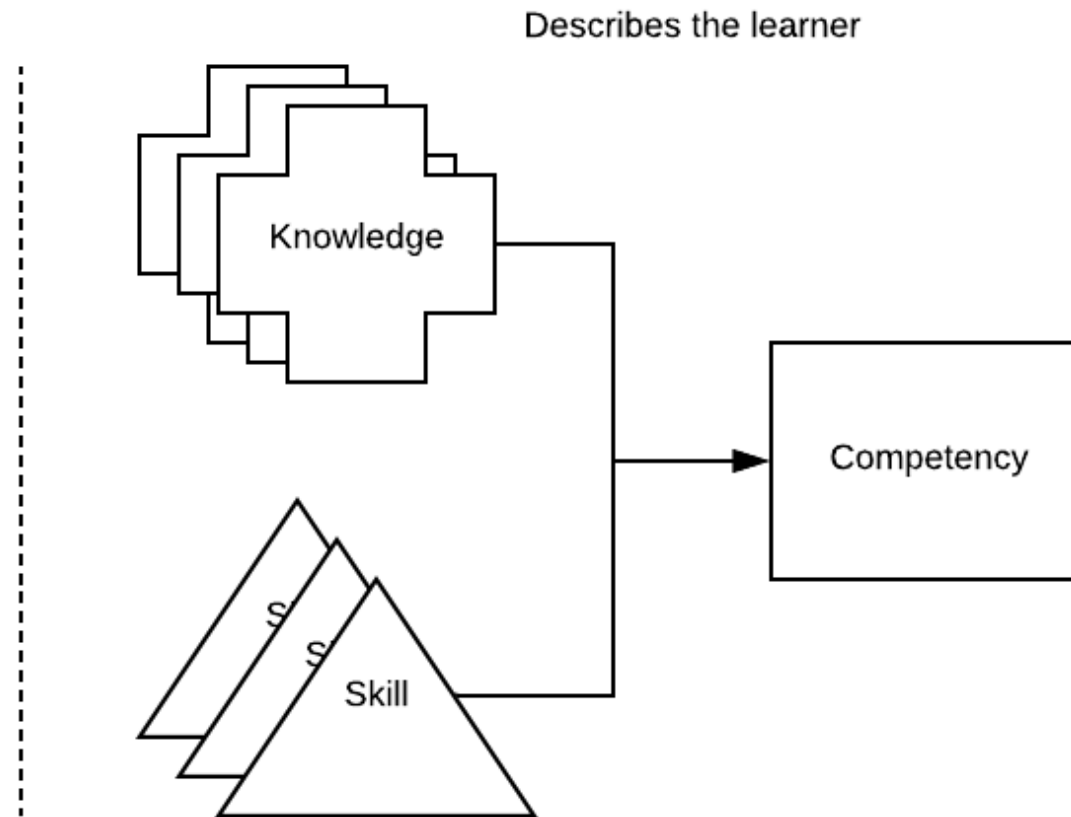
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Sources of Additional Information
All 10 displayed

Disclaimer: Sources are listed to provide additional information on related jobs, specialties, and/or industries. Links to non-DOL Internet sites are provided for your convenience and do not constitute an endorsement.

- [\(ISC\)2](#)
- [CompTIA](#)
- [CompTIA Association of IT Professionals](#)
- [High Technology Crime Investigation Association](#)
- [Information Systems Security Association](#)
- [InfraGard](#)
- [ISACA](#)
- [National Initiative for Cybersecurity Education](#)
- [Occupational Outlook Handbook: Information security analysts](#)

Feature: Competencies





Socializing the NICE Framework to a Wider Audience

- [Industry Association Links](#)
- [NICE Free and Low Cost Online Cybersecurity Learning Content](#) **New**
- [Cybersecurity Workforce Demand](#)
- [Cybersecurity Workforce Development Toolkit](#) **New**
- [NICCS Training Catalog](#)
- [NICCS - Call for Training Providers](#)
- [Building the Cyber-Savvy Workforce - Webinar](#)
- [Cybersecurity Certifications](#)
- [Cybersecurity Education Certification Finder](#)

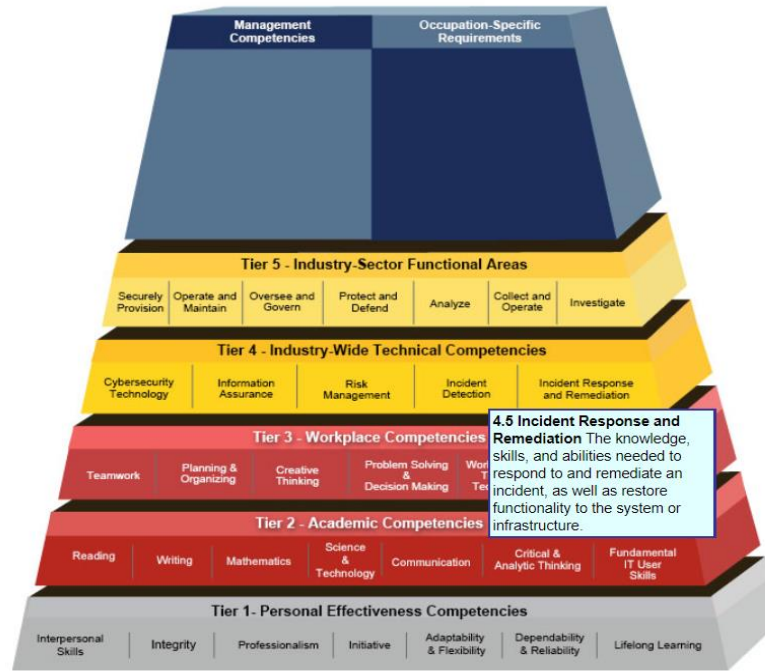
How To

- [Download the industry model and worksheets in several formats](#)
- [Instructions to view the model graphic](#)

General Information

- [The "Building Blocks"](#)
- [Frequently Asked Questions](#)

Cybersecurity Competency Model



<https://www.careeronestop.org/CompetencyModel/Competency-Models/cybersecurity>

Q & A

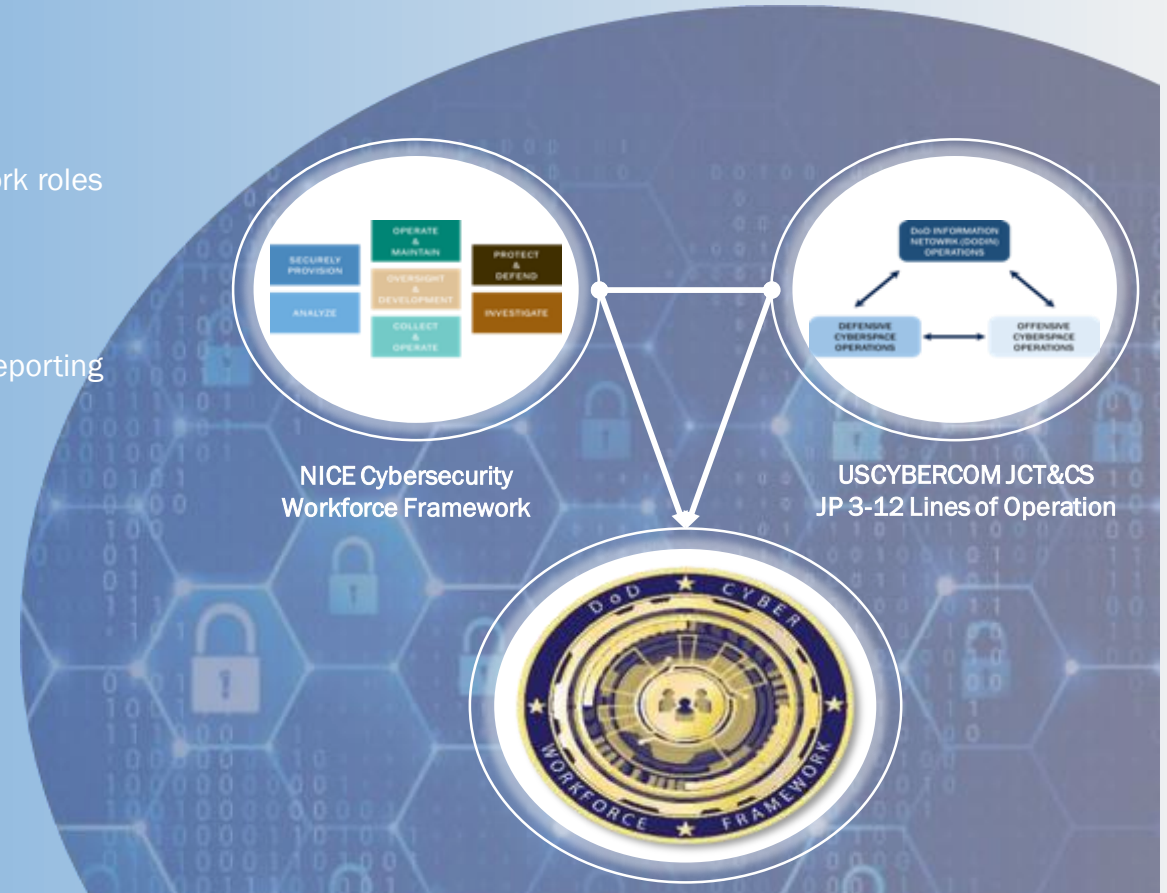
Matthew Isnor

Senior Program Lead
Cyber Workforce Development
Department of Defense, OCIO

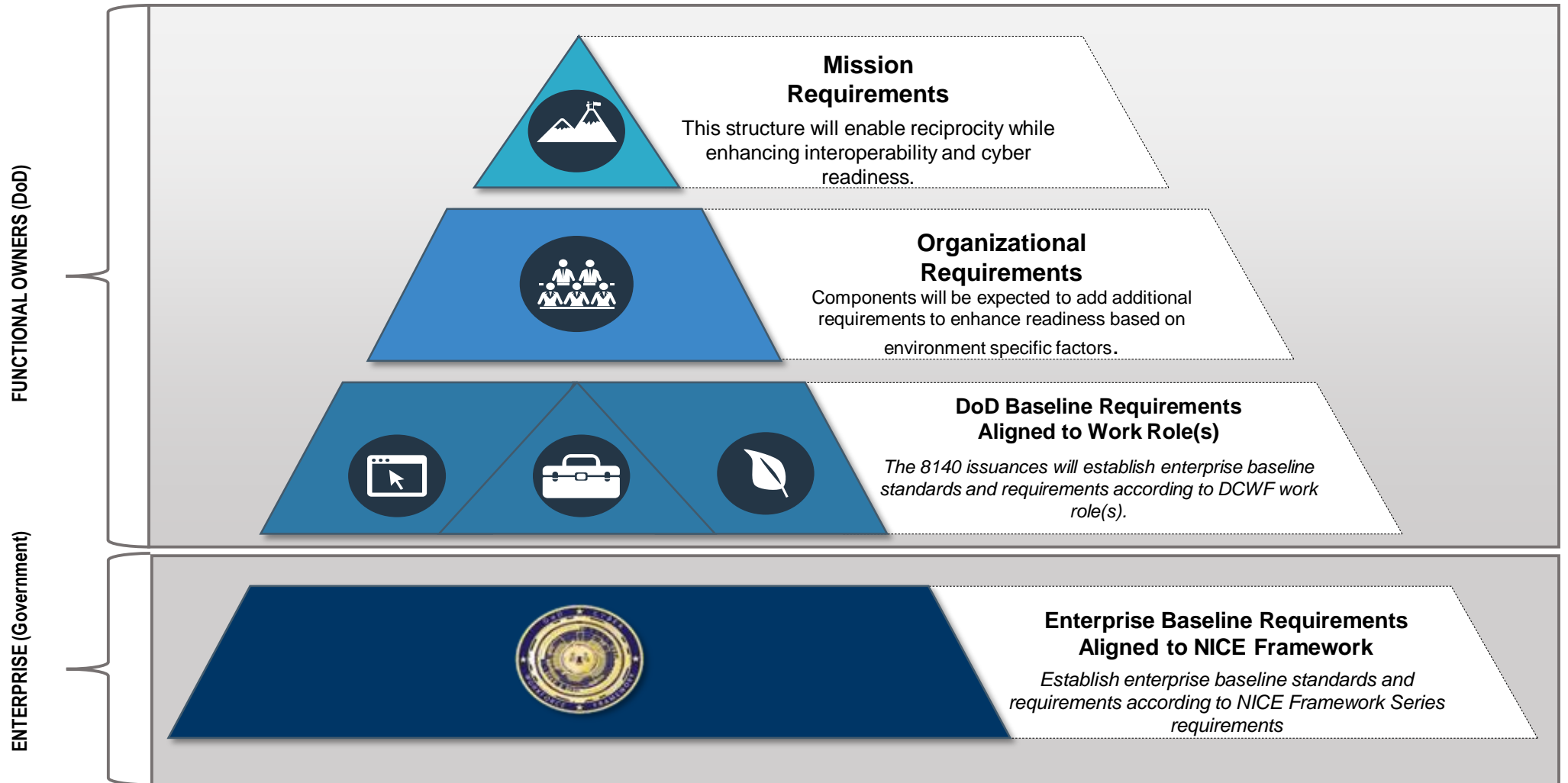


DoD Cyberspace Workforce Framework (DCWF)

- Establishes an authoritative lexicon based on the work an individual is performing, not their position titles, occupational series, or designator
- Develops qualification requirements for cyber work roles outlined in DoD Manual 8140.XX
- Facilitates uniform identification, tracking, and reporting required by the Federal Cybersecurity Workforce Assessment Act (FCWAA)
- The DCWF has been adapted at the national level in NIST Special Publication 800-181
- Used to develop an international framework under the NATO Multinational Cyber Defense Training & Education Project.



DoD Organizational Building Blocks



Lisa Dorr, Senior Talent Manager



**Department of Homeland Security Office
of the Chief Human Capital Officer**

- Cybersecurity and Intelligence Talent Experience (CITE) Division
- Cybersecurity Talent Management System (CTMS) Innovations Team
- Senior Talent Manager for Strategic Analysis & Change Management and Talent Engagement & Development

Federal Cybersecurity Workforce Trends

Workforce Trends

- 1 Government work is increasingly knowledge work, requiring complex problem-solving and unpredictable application of skills
- 2 Jobs are becoming increasingly non-standard and complex
- 3 Employee expectations no longer always map to the 30-year federal career
- 4 Highly-competitive labor markets exist in which the Federal Government is only one employer

Practices to Revisit

- 1 Position classification from the first half of the 20th century cannot describe cybersecurity work or talent
- 2 Self-rating and brief interviews cannot measure cybersecurity expertise
- 3 Rigid, tenure-based approaches to pay and career progression are not competitive

DHS Cybersecurity Talent Management System

Background

Congress granted the Secretary broad authority to establish an alternative personnel system to recruit and retain cybersecurity talent

- *Passed as part of the December 2014 Border Patrol Agent Pay Reform Act*
- *Broad authority with some restrictions and requirements, including producing regulation*
- *Similar language to authorities for personnel systems in Department of Defense and Intelligence Community*

Challenge

Simply eliminating a step in the hiring process or adding a pay grade will not make DHS competitive, especially given the global shortage for cybersecurity talent

- *Department's cybersecurity human capital challenges are about more than just pay*
- *The world of work—especially cybersecurity work—continues to evolve*
- *Conventional civil service approaches, including position-based hiring and pay, are showing their age*

Solution

DHS is preparing to launch the CTMS and Cybersecurity Service (DHS-CS) to better manage cybersecurity talent in the 21st century

- *Modernize talent management to align to and keep pace with cybersecurity work*
- *Take a comprehensive, mission-focused approach to recruit and retain talent*
- *Understand and customize leading private and public sector practices for DHS*

Methodology

Sourced input from key DHS cybersecurity and human capital stakeholders

+

Reviewed all major federal personnel transformations since the 1970s

+

Benchmarked leading private sector practices, including those for hiring assessment and compensation

+

Engaged with human capital experts from the Office of Personnel Management and the Intelligence Community

Ken Vrooman, Senior Advisor



Cybersecurity and Infrastructure Security Agency

- Cyber Defense Education and Training sub-division
- Acting Branch Chief for the Curriculum, Evaluation and Support Branch

Cyber Defense Education & Training

- As the Nation's Risk Advisor, CISA leads the effort to ensure there is an appropriate staffing of cybersecurity professionals to address the increasing demand of protecting the government, critical infrastructures, SLTT, and public/private partners.
- To accomplish this, CISA is standing up the Cyber Defense Education & Training (CDET) Subdivision to consolidate and expand the agency's ability to address this workforce shortage crisis.

CDET Mission

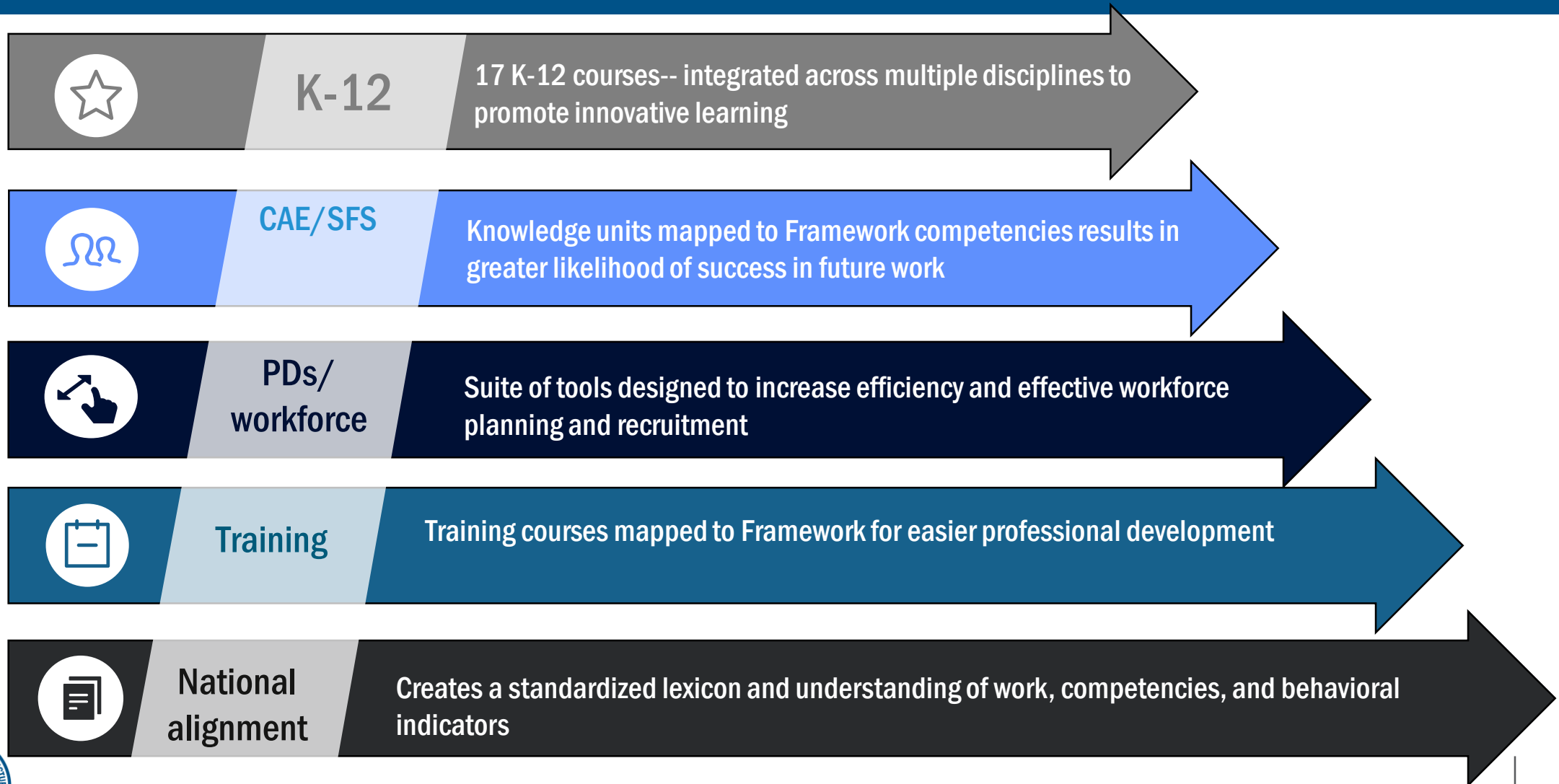
Educating the Nation to Address Cybersecurity Challenges

CDET Vision

Sustain an Adaptive Cybersecurity Workforce as a National Asset



NICE Framework is the Core



Feature: Building Teams with Work Roles

Lifecycle Phase	Work Role
Design	Security Architect
Build	Software Developer
Deploy	Network Operations Specialist
Operate	Customer Support Specialist
Maintain	Database Administrator
Decommission	Communications Specialist

Feature: Building Teams with Competencies

- Example: Red Team
 - Competency: Engagement Planning
 - Competency: Rules of Engagement
 - Competency: Pen Testing
 - Competency: Data Collection
 - Competency: Vulnerability Exploitation

Q & A

Thank You for Joining Us!

Upcoming Webinar: *Educating Youth for a Cybersecurity Future*

When: Wednesday, September 16, 2020, at 2:00 p.m. EDT

Register: <https://nist-nice.adobeconnect.com/webinarsep2020/event/registration.html>

nist.gov/nice/webinars