# NICE Community Coordinating Council
## Meeting Minutes
### March 22, 2023 | 3:15-5:00 p.m. ET

I. **Introduction and Ground Rules** – Danielle Santos, NICE Manager of Communications and Operations

- The NICE Community Coordinating Council was established to provide a mechanism in which public and private sector participants can develop concepts, design strategies and pursue actions that advance cybersecurity education, training and workforce development.
- Members are encouraged to participate in the meeting via the platform chat space and the Q&A space.
- Reminder: The meeting it is not intended for marketing or other commercial purposes.

**II. Opening Remarks**

a. Interim Academic Co-Chair – Paul Bingham, Vice President and Dean, College of Information Technology, Governors University

- Google's Bard, Microsoft's AI and Microsoft's Co-Pilot have joined the race competing against Chat GTP for the most mentions in the daily news. There is much debate about balancing academic integrity issues with leveraging these AI advances to facilitate learning, productivity and job readiness.
- Keep an eye on a proposal in President Biden's budget for two years of free community college as well as funding for programs to support student success, such as academic career counseling, tutoring and other support services. It is unlikely to survive in congress but will certainly remain a topic of discussion for some time.
- The US Department of Education is considering the use of undercover students to investigate prejudice against students during enrollment and scholarship on-boarding processes at various colleges and universities. The plan requires further evaluation and development.
- The National Student Clearing House released their report on 2022 enrollment data. Notable points included: non-freshman enrollment declined at a slower rate than the previous year. Returning students improved by five percent in fall of 2022. Upward transfers had a fifteen percent decline from 2020 to 2022. Community college enrollment was flat in 2022. More than half of all traditional age undergraduates are from higher income backgrounds. Lower income students are occupying a decreasing share with the most dramatic movement dropping 11 percent in enrollment.

b. Government Co-Chair – Rodney Petersen, Director of NICE

- It is troubling data around the impact of higher education access for those in lower socio-economic backgrounds. The news serves as a plug for the NICE Conference in June on 'Resetting Expectations' and talking about pathways into careers for

cybersecurity, particularly as the community seeks to diversify and be inclusive of those being left out.

- Rodney summarized the effectiveness of the NICE program, on building an education and workforce program, in three ways:
    - One, it starts with strategy. The current NICE Strategic Plan is NICE's third strategic plan over a period of twelve years. The NICE goals around promoting career discovery, transform learning, modernizing talent management, increasing use of the NICE Framework and using evidence of what is effective in cybersecurity education workforce, are the current focus and efforts of NICE. Starting with a broad vision and mission is very effective.
    - Second, the NICE Workforce Framework. Others are gravitating toward the NICE approach. It is the model that the framework team is building, with the building blocks, the tasks, knowledge statements, the use of work roles and competencies. It is a model from which other areas can benefit.
    - Finally, NICE community engagement. The NICE Community Coordinating Council, the work NICE does across the Federal government inter-agency, events (NICE Conference and K12 Conference, webinars, workshops, etc.) are all activities of engagement. Ongoing engagement creates an integrated eco-system for which the NICE team strives. NICE still has a lot of work to do. The conference is a perfect opportunity to reflect and look forward.

III. **Standing Items**

a. Report Roundup – Learning from Good Ideas

*Building a Skilled Cyber Security Workforce*
Presented by Marieke Vandeweyer, Organization for Economic Co-operation and Development (OECD) Centre for Skills
URL: https://www.oecd.org/publications/building-a-skilled-cyber-security-workforce-in-five-countries-5fd44e6c-en.htm

- The report, which included data from Australia, Canada, New Zealand, the United Kingdom and the United States, was released March 21, 2023.
- Part one of the analyses focuses on the demand for cybersecurity professionals. What are the characteristics of the demand and how is the demand changing? It was conducted based on on-line job posting data over the last ten years.
- There is a strong and increasing growth in the demand for cybersecurity professionals across all five countries. Smaller markets show stronger growth than more consolidated markets. Within some countries there is a catching up happening of job postings outside of the major city hubs.
- The analyses also looked at different roles. The cybersecurity profession encompasses a variety of roles depending on the tasks that workers carry out. Leveraging the job titles available, the roles were classified in four main cybersecurity roles: Analysts, Architects or Engineers, Auditors or advisors and Managers. Cybersecurity architects and engineers had the largest share of job

postings with strong growth in both the US and Canada. The second group with the most was for security analysts with robust growth in Australia, New Zealand and the United Kingdom.

- The report examined what employers listed as requirements for major job roles. A candidate will typically need a bachelor's degree and more than three years of experience. Very few postings for one year experience or less creating little space for young talent which creates a major challenge in reducing the workforce gap.
- Part two of the analysis looked at the supply side. They took a qualitative perspective to look at the available training in a country. Here their efforts were focused on England. Existing training and policies were examined to see what potentially makes the training more attractive. There is an abundance of training programs in England with programs available at different levels and settings. They go from introductory programs or vocational and technical vocation which build pathways into higher level programs to higher level education. There are also apprenticeships in cybersecurity within England at all levels. Finally, there are skills bootcamps which are government funded. They typically last sixteen weeks, develop specific cybersecurity skills and have a guaranteed job interview at the end of the program.
- Policies and initiatives, from both the government and the private sector and NGOs to increase the access and quality of the training programs, were reviewed for the analyses. Some of these included strategies to overcome barriers and initiatives to certify training programs as well as how to engage employers in these programs.
- Employers need to be brought inside of these programs and in delivering the programs. The provision of work-based learning should be increased.
- Q&A:
  Q: The UK CyberSkills "boot camps" have high participation but which employers accept those graduates as qualified for their jobs and what are the jobs?
  A: There are many different types of bootcamps. Some provide training to people with no background. Within sixteen weeks they get a person ready for very low-level roles in cybersecurity. It is a first steppingstone. Other bootcamps have entry requirements such as certain certifications or qualifications so they get more advanced cybersecurity training.

b. Framework Feature – Applications and Uses of Workforce Framework for Cybersecurity

*Collaboratively Developed Knowledge Statements for Industrial Cybersecurity*
Presented by Sean McBride, Idaho State University

- Idaho State University has the country's only Industrial Cybersecurity (ICS) Degree Program.
- The effort began with a literature review. They looked at different frameworks and difference guidance from around the world. Recognized that industrial cybersecurity, industrial IT security and OT Security is generally missing from almost all the frameworks.

- Met with experts from the Idaho National Laboratory and began to identify categories of knowledge, and then topics within those categories. What does someone need to know to become a professional in industrial cybersecurity?
- The work resulted with the 'Building an Industrial Cybersecurity Workforce' document. The initial document was used as a strawman. The topics from the document were made into a survey. Analyses on the survey results have been conducted and the hope is to put out a curricular guidance on industrial cybersecurity this year.
- The survey included over 300 questions divided into three sections: 1.) Respondent Background, 2.) Foundational ICS knowledge (five categories, 41 topics) and 3.) ICS Cybersecurity knowledge (Four categories /29 topics)
- For each category and topic, they asked each respondent to rate on a scale of one to ten how relevant was the category of the topic, choose to keep as is, change it or remove it. The relevance question allowed them to determine whether the background of the person taking the survey influenced their response.
- The survey was open from November 2021 to February 2022. It was published primarily through the IS Automation Global Cybersecurity Alliance (ISAGCA) targeting professionals whose voices may not have been heard in curricular guidance in the past. There were 175 total respondents and 63 who finished every question in the survey.
- They took 96 individuals who answered at least one question, after the background section, and broke down their responses into categories of their academic preparation. Some were education majors, but the vast majority were electrical engineering majors in a university level. They then asked for the number of years the individuals had stayed in IT security or industrial cybersecurity and roughly 723 of those years were in industrial environments (based on cumulative contributor years of cybersecurity experience by focus).
- Focusing on the 'Foundational Control Systems Knowledge' had 96 respondents, 342 responses, 461 atomized responses, one respondent offered 47 suggestions, and 45 respondents offered one or two suggestions.
- Among the categories in the Foundational Control Systems Knowledge survey, one of the categories is called 'Industrial Operations Ecosystem Category. Some of the topics suggested in that category include industry sectors, professional roles and responsibility, organizational roles, process types, industrial life cycles, facilities and engineering diagrams.
- For every single response where a respondent said change or remove a topic, they were given an opportunity to provide a textual response as well. Then for every single topic they examined each topic and decided what to do with it. What action would they take based on the textual input.
- Examples of responses they received highlighted the gap between IT and OT. The responses highlight the divide and the reason they wanted to conduct the survey in the first place.

- Every response was reviewed on its own merit. There were 461 atomized responses and they incorporated 275 of them. For the first three categories they directly accepted 90, indirectly accepted 156 (they accepted the idea) and made a note in the guidance document for 29. The remainder of the responses belonged in another section for reasons such as not having enough detail, or they disagreed with the concept.
- Working with Karen Wetzel of the NICE Framework team to ensure that the knowledge statements are in line with the format NICE is using. They are collaborating with groups like the ACM in addition to ensuring the guidance is compatible with other formats. Once the document is published the attention will turn to tasks and skills statements and eventually get into the idea of attitudes and behaviors.
- Q&A:
  Q: Often we hear the use of the word IT/OT convergence. Do you feel that this convergence is happening at the human level or only at the hardware and software level?
  A: There has been debate on the use of the term 'convergence'. What is converging? What is expected to converge? Digitization is being pushed across everything, including industrial environments. What is needed is the convergence of mentality of the employees going into these environments. Need to work on converging the educational background and the managerial style of these two groups. Yes, digitization is happening.
  Q: How can people see the results of the survey?
  A: The results will be published on the INL and ISA websites.

c. Research Review- Driving Research on Effective Practices

*Cybersecurity Competitions as Educational Tools*
Presented by Ali Crawford, Research Analyst, Georgetown University
URL: https://cset.georgetown.edu/publication/u-s-high-school-cybersecurity-competitions/

- Cybersecurity Competitions as Educational Tools (CSET) are a non-partisan and philanthropically funded policy think tank operating at the intersection of emerging technology and national security across nine different lines of research. CSET's goal is to produce data-driven analytical products for a federal audience.
- The three main research questions that motivated this work:
  - How are cybersecurity competitions used in the classroom?
  - What factors makes a team or a school successful in these competitions?
  - What experience does a student need to be successful?
- CSET analyzed data from 24 top performing schools from CyberPatriot and picoCTF but supplemented it with empirical evidence. They spoke with 12 educators from 10 schools including top performing schools as well as schools doing interesting work within the cybersecurity competitions space.
- The benefits and opportunities from competitions are immense. Students are gaining practical and industry relevant skills outside of the traditional classroom. They also get exposure to both job and scholarship opportunities giving them entry

onto pathways into the cyber workforce. There are also monetary incentives. The students gain access to cybersecurity education, training materials, and safe practice space where they can learn, play and break things. Student success was not necessarily dependent on previous experience with or exposure to computer science or cybersecurity.

- Student success depends on access to prepared and agile educators and mentors, to hardware, practice time and space as well as reliable Internet as well as the support of the school or even the district administration.
- Shortage of K12 Computer Science & STEM teachers remains a challenge to student success. Collaboration and local partnerships can have a positive impact.
- Competitions are exposing students to pathways into the cybersecurity workforce as well as to participation acknowledged by employers.
    - To connect with Ali her email is: ac2213@georgetown.edu
    - Subscribe to the CSET bi-weekly newsletter: https://cset.georgetown.edu/publications
    - To request briefings, contact Danny Hague at danny.hague@georgetown.edu
- Q&A:
  Q: How do you see competitions valued as compared to in classroom learning?
  A: Students are gaining practical industry relevant skills which is the big differentiator between what a student learns in the classroom versus a hands-on tangible approach. The National Cyber League structures their competitions to the NICE Framework so students can say they have demonstrated competencies within 'XYZ' which is much more valuable for a student.

IV. **Working Group Updates**

a. Promote Career Discovery
Co-chair: Keith Davis, Koinonia Family Life, Inc

- Liz Green presented on neurodiversity and the enormous impact and potential the inclusion of neurodiverse individuals can have in cybersecurity.
- Reviewed the groups 'Ambassador Program'. The group anticipates and expects to launch the program fully by mid-September to mid November 2023.
- Site: Promote Career Discovery Working Group | NIST
- Next meeting: April 19, 2023, at 3:30 p.m. ET
- Q&A:
  Q: Is your working group looking at other ways of promoting career discovery to underserved communities?
  A: Yes, just recently, a major company reached out to the group to start a program with a champion ambassador to work with homeless individuals.
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b. Transform Learning Process
Co-chair: Richard Spires, Richard A. Spires Consulting

- Project 1: Use of Performance Based Assessments to Measure Cybersecurity Competencies Project': Reaching out through the CAE with a survey instrument and

coordinating with them on projects. Leveraging a toolset already developed as a roadmap to identify hundreds of certifications across the NICE Framework.
- Project 2: Diversity and Inclusion: there will be a webpage up with resources focusing on underrepresented groups. Deliverables include one-to-two-page briefings from the voices of those within the underrepresented groups.
- Both projects were selected to present at the NICE Conference in June.
- Next. The group will point their attention toward interdisciplinary aspects of transforming learning as well as learning and employment records (LERs). They will collaborate with other working groups and COIs.
- The NICE Cybersecurity Awards page was created by the NICE staff as a way to document ways individuals and organizations can be recognized in cybersecurity.
- Q&A:
  Q: On the 'Performance Based Assessment' project, what is the scope of coverage there?
  A: The team is looking at classifying the types of performance-based assessments in demonstrating it through simulations and other types of work and where do they fall today, both from an educational perspective and certification perspective.
- Site: Transform Learning Process Working Group | NIST
- Next meeting: April 11, 2023, at 2:00 p.m. ET.

c. Modernize Talent Management
Co-chair: Lynsey Caldwell, Leidos

- The group recognized outgoing co-chair, Melissa Woo and incoming co-chair, Lanita Colette, CISO and Deputy CIO of the University of Arizona was introduced as well.
- Guest speakers from iQ4 presented on how artificial intelligence (AI) and machine learning (ML) is impacting cyber talent management in career platforms and how AI/ML impacts the shift to skills-based hiring, career pathways, learning portability, and more efficiently connecting talent to jobs/employers.
- The group heard an update from the 'Guidance on Writing Effective Job Descriptions' team. They sent out a draft document to the MTM working group on two artifacts and are requesting feedback. The team also requested working group members send out a toolkit for testing to their HR contacts.
- Site: Modernize Talent Management Working Group | NIST
- Next meeting: April 20, 2023, at 1:00 p.m. ET

## V. Community of Interest Updates

a. Apprenticeships in Cybersecurity
Co-chair: Debbie McLeod, McLeod Information Systems

- Abigail Alenn provided an apprenticeship update from the Department of Labor.
- The group recognized outgoing co-chair, Tony Bryan, and incoming co-chair, Katie Adams of Safal Partners, was introduced to the group.
- The group heard from Karen Buschman, Missouri Chamber of Commerce, who spoke about how the Missouri Chamber Foundation grant funds were used to develop the tech industry for their state through apprenticeships.
- A survey was sent out to the Apprenticeship COI. They will compile their results by the next meeting.
- Site: Apprenticeships in Cybersecurity Community of Interest | NIST

- Next meeting: April 14, 2023, at 11:00 a.m. ET

b. Cybersecurity Skills Competitions
Danielle Santos, NICE Manager of Communications and Operations

- The group did not meet in March.
- There are two competitions coming up:
  - Wicked6: March 30-31, 2023. A global event for women in cybersecurity.
  - Conquer the Hill: Adventurer Edition event from the Department of Energy's Cyber Force Competition. The application period for this event closes at the end of the month. It is a competition specifically for undergraduate, graduate and PHD students.
- Site: Cybersecurity Skills Competitions Community of Interest | NIST
- Next meeting: April 20, 2023, at 3:30 p.m. ET

c. K12 Cybersecurity Education
Co-chair: Thomas Trevethan, Palo Alto Networks

- The meeting recognized Women's History Month.
- Heard from two guest speakers from State and Local Cybersecurity Grant Program (SLCGP) present on a road map for cybersecurity-based grant programs
- The project lead from the Cybersecurity Ambassadors program provided a debrief.
- Discussed a potential membership drive to boost participation and encourage faculty to help with the projects.
- Site: K12 Cybersecurity Education Community of Interest | NIST
- Next meeting: April 13, 2023, at 3:30 p.m. ET

d. NICE Framework Users
Karen Wetzel, Manager of the NICE Framework

- In early April the team will release proposed updates to the NICE Framework work roles and the categories into which those work roles are organized. The changes are based on feedback received from the NICE Community.
- Karen introduced the newest member of the NICE Framework team, Mike Prebil. Mike will focus his immediate attention on the NICE Framework users' group.
- Karen launched two poll questions:
  - Poll Question 1: I think of the nice framework as a tool for?
    - Education and training development had the most votes at 64%
  - Poll question 2: Are you currently using the nice framework?
    - 80% said yes
- Are you looking for more information on ways to use the NICE Framework? We want to help! NICEFramework@nist.gov
- Contribute to the community! Share how you use the NICE Framework via a NICE Framework Success Story: https://www.nist.gov/itl/applied-cybersecurity/nice/nice-framework-resource-center/success-stories-guidance-preparation
- Join the conversation! Ask questions and share ideas with others in the NICE Framework Users Group: https://www.nist.gov/itl/applied-cybersecurity/nice/community/community-coordinating-council/nice-framework-users

## VI. Project Progress Reports

a. NICE Conference and Expo (Seattle, Washington) – June 5-7, 2023
Presented by Randy Pestana, Florida International University
URL: https://niceconference.org/

- The NICE conference is June 5 - June 7, 2023, at Westin Seattle in Seattle, Washington.
- Regular Registration is open, and they expect a full sell out. March 20 – May 14, 2023. https://niceconference.org/hotel-travel/
- A local stakeholder pre-conference event will take place on April 3, 2023, in Seattle, Washington. Encourage attendance. Will have a live session and people can register for online viewing: https://www.cityu.edu/nice-pre-conference/
- Encourage registration for the pre-conference workshops. The workshops will be held on Monday, June 5, 2023, from 1-5:00pm PT. Four fantastic workshops that are expected to sell out.
- Many people have received responses regarding their proposals. If anyone has yet to hear a response expect word soon.
- Thanks to the 2023 sponsors and key partners. Sponsorships are nearly sold out.
- They will be livestreaming the plenary sessions but not the breakout sessions.
- Connect with us:
    - Website: www.niceconference.org
    - Email: info@niceconference.org
    - Twitter: @nicecybercon

b. NICE K12 Cybersecurity Education Conference (Phoenix, Arizona) – December 4-5, 2023,
Presented by Felicia Rafeliff, iKeepSafe
URL: https://www.k12cybersecurityconference.org/

- The NICE K12 Conference will take place December 4 – December 5, 2023. Pre-conference workshops will be on Saturday, December 2, and possible tours on December 3, 2023.
- The conference will be at the Hilton Phoenix Resort at the Peak and government rates will be available until November 10, 2023. Registration is now live as of today.
- First planning committee meeting takes place on Thursday, March 23, 2023, ET.
- Call for Proposals opens on April 27, 2023, and close on July 14, 2023. They will have submissions for pre-conference workshops, breakout sessions, panels, pre-recorded sessions and virtual poster sessions. Get on the mailing list!
- Call for sponsors and exhibitors at many different financial levels.
- The 2023 pre-conference workshops will be held at Grand Canyon University. A tour will be provided as well as hands-on activities.
- Connect on Twitter:
    - @ikeepsafe
    - NISTcyber
    - #NICEK12

## VII. Closing Remarks and Next Meeting Reminder

The next NICE Council Meeting will be **April 26**, at 3:30 p.m. ET.