VISITING COMMITTEE ON ADVANCED TECHNOLOGY (VCAT or Committee)
MINUTES OF THE WEDNESDAY, FEBRUARY 12, 2025
VIRTUAL/HYBRID MEETING

ATTENDANCE:

Visiting Committee Members Attending
Broz, Joseph
Chakrabarti, Gaurab
Fox, Glenn
Ghosh, Monisha
Holland, Michael
Meszaros, Jacqueline (Jack)
Pierpoint, Mark

Designated Federal Officer
Shaw, Stephanie

NIST Leadership Board
Adams, James
Beers, Kathryn (Kate)
Boehm, Jason
Brockett, Del
Brown, Essex
Brown, Hannah
Burkhardt, Craig
Chin, Joannie
David, Lindra
Fangmeyer, Robert (Bob)
Folk, Alex
Kushmerick, James
Lin, Eric
Mackey, Elizabeth (Liz)
McKay, Lynelle
Midzor, Melissa
Molnar, Michael (Mike)
Olthoff, James (Jim)
Rao, G. Nagesh
Romine, Charles (Chuck)
Stine, Kevin
Szakal, Christopher
Vaughn, Robert (Skip)
Wixon, Henry

NIST Staff
Andrews, Anne
Averill, Jason
Ayala, Melissa
Boeckl, Kaitlin (Katie)
Carnahan, Lisa
Dickson, Jessica
Gettings, Katherine
Green, Gretchen
Hardis, Jonathan
Hernandez, Autumn
Hickernell, Robert (Bob)
Hight-Walker, Angela
Hoehler, Matthew
Hooker, Stephanie
Huergo, Jennifer
Hynes, Joseph (Joe)
Incognito, Christian
Jurrens, Kevin
Kauffman, Leah
Lane, Anne
Loftin, Bethany
Mahn, Amy
Malhotra, Jyoti
Mayton, Heather
Mitchell, Lyschelle
Moylan, Shawn
Nadal, Maria
Newman, Aron
Polyakov, Sergey
Press, Rich
Putorti Jr., Anthony (Tony)
Reidy, Kari
Rigosi, Albert
Rivera, Angelina
Rouil, Richard
Santos, Danielle
Schlatter, Katie M.
Schlenoff, Craig
Sedgewick, Adam
Sharpless, Kathy
Shriner, Julia
Shyam-Sunder, Sivaraj
Sofka, Holly
St. Pierre, James (Jim)
Stambaugh, Corey
Sullivan, Suzanne
Szuchyt, April
Tarlov, Michael (Mike)
Thorn, Savann
Vanek, Anita
Walker, Marlon
Zhang, Jessie

Others
Garaga, Nikky – Lewis-Burke Associates LLC
Luckett, Mia - Lewis-Burke Associates LLC
Meritis, Dimitrios – U.S. Department of State
Prager, Zachary - U.S. Department of Commerce
Updyke, Craig – ASTM International

Wednesday, February 12, 2025

SESSION I: OPERATIONAL UPDATES

Call to Order – *Dr. Mark Pierpoint, VCAT Vice Chair*

Dr. Pierpoint, the VCAT Vice Chair, called the meeting to order at 10:00 a.m. ET. He began by welcoming three new members, Dr. Jacqueline (Jack) Meszaros, Dr. Joseph Broz, and Dr. Gaurab Chakrabarti to the VCAT. He also acknowledged Dr. Michelle Parker, whose term ended in mid-January and thanked her for her dedicated service to the Committee. He also welcomed Mr. Craig Burkhardt, the new Deputy Under Secretary of Commerce for Standards and Technology and Deputy NIST Director, serving as the Acting Under Secretary and Acting NIST Director until a new Director is nominated by the White House and confirmed by the U.S. Senate. He then reviewed the meeting logistics and took roll call before turning the meeting over to Mr. Prager for the annual ethics briefing.

Annual Ethics Briefing - *Mr. Zachary Prager – Attorney in the Ethics Law and Programs Division, Office of the General Counsel, Department of Commerce (DOC)*

Mr. Prager provided the VCAT Members with their annual ethics briefing for the 2025 calendar year and reviewed changes in the interpretation of Federal Advisory Committee Act (FACA) regulations, including conflict of interest rules, financial disclosure requirements, and restrictions regarding lobbying, political activities, gifts, and other issues.

For more information, see Mr. Prager's presentation.

Welcome Remarks and Introduction to the VCAT

Mr. Burkhardt introduced himself to the VCAT and provided background on his education and career experiences. Mr. Burkhardt stated that he had spent the early part of his career in Chicago, Illinois, and practiced law in science and technology policy for 20 years. He was then recruited to work in Washington, D.C., supervising legal services at NIST for numerous projects, including the building and fire safety investigation of the World Trade Center disaster. He stated that since his appointment as the Deputy Under Secretary of Commerce for Standards and Technology and Deputy NIST Director, currently serving as the Acting Under Secretary of Commerce for Standards and Technology and Acting NIST Director, he recognizes the same ethics from 22 years ago in the NIST scientists and supports staff today in the thoroughness of their scientific work.

Mr. Burkhardt said he will be prioritizing science and safety and will be spending time in Gaithersburg and, when appropriate, in Boulder, as well as some of the other locations. He believes that making decisions and moving things forward is something that needs to happen, and he will make those decisions in the interim until an Under Secretary of Commerce for Standards and Technology and NIST Director is nominated and confirmed.

He has recently retired from his law firm after 40 years of practicing law in the areas of science and technology. Mr. Burkhardt is looking forward to carrying out public policy work and being supportive to the mission of NIST.

SESSION II: SPECIAL TOPIC HIGHLIGHT

Cybersecurity Updates and Outlook – *Mr. Kevin Stine, Director of the Information Technology Laboratory (ITL)*

Mr. Stine spoke about ITL, and specifically about the cybersecurity program, which cultivates trust by advancing cybersecurity and privacy standards, guidelines, practices, and technologies. Trust is central to everything NIST does, and has been doing, for over 50 years.

NIST has a deep technical expertise across a very expansive portfolio in the cybersecurity space. The collaboration, both formal and informal, across the U.S. in industry, academia, government, and organizations of all sizes help to inform ITL's work. NIST continues to be relied upon by the executive branch, Congress, and U.S.

industry because of a proven track record and technical expertise. NIST has a portfolio of fundamental and applied research standards and guidelines that transition to practice. The goal is to get these into the hands of practitioners on a global scale to help improve the security, efficiency, and effectiveness of their business operations using the standards and other practices.

Mr. Stine said NIST's roots in cybersecurity originated with cryptography work back in the early 1970s, which was done in collaboration with industry, academic, and other government agencies. The portfolio in the cryptography space has continued to grow and is the centerpiece for the broader cybersecurity program.

Progress made in the post-quantum cryptography space in the last several years involved the international cryptographic community and culminated in the release of the first set of post-quantum cryptographic standards (federal information processing standards) in August 2024. NIST is now embarking on the transition from current algorithms to new ones estimated to be released in late 2025, having those built into standards and products, and implemented within infrastructures and organizations.

The Cybersecurity Framework (CSF) is NIST's landmark guidance document for reducing cybersecurity risk. In February 2024, CSF 2.0 was released. It adds new governance and supply chain considerations. The CSF is widely used internationally, with a previous version being translated into 13 languages. The new CSF 2.0 is currently being translated into seven languages, with more languages planned. These translations of NIST documents help expand the use of cybersecurity and privacy resources globally, which will help improve U.S. industry engagements in global markets.

One of the most visible and used resources in the identity and access management portfolio today is NIST's Digital Identity Guidelines (NIST Special Publication 800-63), with Revision 4 nearing finalization. This will provide updated guidance on a wide range of methods to prove identity, including digital wallets, passkeys, and physical IDs to ensure the security, privacy, and accessibility during the identity-proofing process. NIST efforts are driving global interest and awareness in these emerging technologies, e.g., mobile driver's license (mDL), digital credentials, sync-able authenticators, and modernization of personal identity verification (PIV) program.

The National Cybersecurity Center of Excellence (NCCoE) is one of the main vehicles to transition standards and practices across the NIST cybersecurity and privacy program into practice for government and industry. The mission is accelerating adoption of secure technologies by collaborating with governments, industry, and academia to provide real-world standards-based cybersecurity capabilities that are intended to help address business needs. The NCCoE is housed within the Applied Cybersecurity Division in ITL and is a valuable cross-NIST resource, collaborating with other Labs and programs across NIST, especially in the area of Artificial Intelligence (AI). The touch points between AI and cybersecurity are a key area for those working on genomic cybersecurity, 5G and advanced communications, semiconductors, and operational technologies. A project has been launched at the NCCoE focusing on demonstrating the implementation of the Secure Software Development Framework (SSDF) and the supply chain cybersecurity guidelines. A consortium with industry partners is planned to launch in the March 2025 time frame.

Another NCCoE project is helping to accelerate the adoption of mobile driver's license standards and best practices. A collaboration with 21 organizations, including federal agency partners, industry, and financial institutions will demonstrate the security, privacy, and usability practices for integrating mobile driver's license into real-world scenarios. The initial use cases leveraging mDLs to open a bank account online was published in December 2024, with the initial architecture being released later in spring 2025.

NIST has partnered with nearly twenty-five technology vendors to demonstrate 19 different implementations of end-to-end Zero Trust Architectures (ZTAs). A final draft provided guidance on ZTA to include the implementation results was released in December 2024. A final version will be published after public comment and internal NIST review in the coming months.

The NIST Privacy Framework was modeled after the Cybersecurity Framework so the two could be used together. Updates to the Privacy Framework are ongoing to support better alignment with the CSF 2.0. A draft of the Privacy Framework 1.1 is anticipated to be released sometime in 2025.

Mr. Stine said NIST has a unique role and is a frequent recipient of new responsibilities through laws, policies, executive actions, and industry needs. Many NIST staff are eligible for retirement, and the job markets in

cybersecurity present ongoing challenges. It gives NIST a great opportunity, as the workforce changes and evolves, to maintain focus on areas that are going to be of greatest national need. Input from the broader community, the administration, and Congress, as well as the VCAT, will help to inform the ongoing work.

For more information, see Mr. Stine's presentation.

Discussion. The group discussed the following topics:

- Collaborative project at NCCoE on PQC migration process from current to new algorithms,
- Engagement in a focused discussion with Quantum Economic Development Consortium (QED-C) on PQC,
- Engagement with federal statistical agencies,
- NIST Small Business Cybersecurity Act and how it helps to focus cybersecurity resources for small business,
- How organizations could implement different capabilities using SSDF standards, guidelines or other practices,
- Ensuring the right technology infrastructure and resources are in place to support laboratory work,
- NCCoE facilities, and continuation of its functions with external partners,
- NIST's continuous prioritization of efforts, requiring a refocus when appropriate.

SESSION III: SAFETY SESSION

Safety Key Performance Indicators (KPIs) and Goals - *Dr. Elizabeth Mackey, Chief Safety Officer and Director of Office of Safety, Health, and Environment (OSHE)*

Dr. Mackey said the NIST Safety Management System (SMS) is based on the Plan-Do-Check-Act model. The Office of Safety, Health, and Environment (OSHE) protects staff from occupational injury and illness and ensures regulatory compliance. It is also responsible for occupational safety and health, radiation safety, fire and life safety code, and environmental compliance. The SMS is based on ISO 45001, the occupational safety and health standard, which provides a framework for integrating safety into all aspects of operations.

NIST leadership communicates its commitment to safety through policy directives and OSHE establishes the safety requirements through planning with a team of experts in various areas of safety. OSHE and laboratory staff collaborate to conduct workplace inspections to see how the safety programs are being implemented in the operational units (OUs). Annually, a management review is conducted with the Executive Safety Committee (ESC) to look at all the data systems and metrics and establish annual goals and targets for safety performance indicators.

Safety performance data falls into six categories:

1. Incident data
2. Corrective actions
3. Inspections
4. Training
5. Communications
6. Internal and external reviews

Dr. Mackey provided the high-level goals for FY 2024. One goal was to have a fully functional SMS and to add administrative procedures on how to analyze data, and how to conduct audits. Another long-standing goal was to improve NIST safety culture. A third goal was to strengthen OSHE roles and responsibilities, which was in response to an external audit from a federal advisory committee. The final goal came from a VCAT recommendation to set numerical goals for metrics and provide better access to the data systems.

In June 2024, the ESC established goals for seventeen key safety performance indicators, which included conducting job hazard analyses. The performance indicators were also added to track management observations. Dr. Mackey stated OSHE launched a dashboard to obtain better access to data and metrics, where you can view incidents, corrective actions, and training completions. The long-term vision of the dashboard results is to turn it into a risk profile.

When it comes to incident reporting, OSHE has a goal of doubling the near-miss reporting. The near-miss reporting is becoming a bit more robust, which means the hazard reviews are working to set safety standards. Timeliness of reporting incidents and investigations has improved. Reducing the open corrective actions has also improved, with fewer than three percent open. As a result of the feedback provided by the VCAT a year ago, OSHE has taken corrective actions with the ESC by looking at targets rather than just trends.

Dr. Mackey stated the goals for 2025 include having a fully functional SMS to ensure the system is functioning correctly. In addition, OSHE is responding to thirteen of the pre-certification audit corrective actions. Improving safety culture along with safety data and data access and improving safety performance are also NIST goals. A final goal is to ensure resources and staff are adequate to support the implementation of the SMS. Due to the ongoing hiring freeze, much of the planned improvements to maintain regulatory compliance may be slowed relative to the optimal effort.

Implementation of Safety Goals in OUs – *Dr. Kathryn Beers – Director of the Material Measurement Laboratory and Dr. Melissa Midzor – Director of the Communications Technology Laboratory*

Dr. Midzor shared some safety goals from the Communications Technology Laboratory (CTL). The CTL has a designated safety coordinator, who is a part of the leadership team and coordinates with OSHE and other subject-matter experts (SMEs) to conduct timely safety reviews. There is an onboarding video for new employees about safety, which contains resources for easy access. Exit interviews also include a safety question to find out how well the safety program is working in the OU. The CTL has been able to increase performance in safety metrics through accountability and integration into everyday life by making it easily accessible for staff.

Dr. Beers said they also have a laboratory safety coordinator in the Material Measurement Laboratory (MML), but there are also dedicated safety representatives in each division, who cover hazard reviews to management observation processes. The goal is to support the professional development of staff, which is important to retention and long-term health of the safety teams.

For more information, see Dr. Mackey's presentation.

Discussion. The group discussed the following topics:

- New facility planning for the aged central utility plant on the Gaithersburg campus,
- Suggestion of adding job categorization to safety dashboards,
- Comfort of scientists in labs interacting with safety coordinators,
- Higher quality and reproducibility of science when staff observe safety practices,
- How quickly the safety issues are addressed in the labs,
- Cash-in-your-account and time-off awards for good safety records,
- Electrical safety as a fundamental challenge due to the age of buildings,
- Conducting safety analyses through management observation,
- Internal and external audits on three-year cycles,
- National Safety Council safety barometer used to score a safety culture program,
- Recognition of good safety practices via awards to promote stronger safety culture, and
- Open dialogue about safety improving staff trust of the process.

SESSION IV: CLOSING SESSION

Discussion of VCAT Annual Report Approach and Topics for the Following Meetings – *Dr. Mark Pierpoint, Vice Chair, VCAT and Dr. Christopher Szakal – Acting Director, Program Coordination Office*

Dr. Szakal provided the logistics of the congressionally mandated VCAT annual report. The report is submitted to Congress no later than 30 days after the release of the annual President's Budget. He then mentioned five general topic areas that were discussed over the past year, emphasizing the NIST core mission, meeting national

needs and demands in the critical and emerging technologies (CET), strengthening U.S. manufacturing leadership, future opportunities and strategic planning, and the NIST budget.

Dr. Pierpoint requested the draft report be resent to all the current members and opened the floor for discussion.

Discussion. The group discussed the following topics:

- Inclusion of broader CHIPS Metrology Program activities in the report,
- Creating a one-page executive summary,
- VCAT member volunteers to help with drafting the one-page executive summary,
- Deadline for VCAT members to complete the edits,
- Three critical areas of focus being national security, U.S. competitiveness, and AI leadership,
- Graphics in the report to emphasize NIST engagement with core sectors that push the mission forward,
- NIST involvement in the aftermath of Los Angeles fires to demonstrate a need for analyzing future fireproofing standards for building codes and fire safety in the future,
- Engineering Laboratory (EL) engagement with the Federal Emergency Management Agency (FEMA) incident response team to Los Angeles fires and other emergency response officials,
- Revisiting disaster failure studies as a future topic for VCAT discussions in the coming year, and
- NIST's long-term value in standards development activities, impacting the safety of society.

Wrap-up

There were no public comments. In closing for the day, Dr. Pierpoint and Dr. Szakal stated that the annual report will be finalized via email. They thanked all the participants, invited guest speakers, and NIST staff.

Adjournment

The meeting was adjourned at 1:07 PM ET.

I hereby certify that to the best of my knowledge; the forgoing minutes are accurate and complete.

Ms. Stephanie Shaw, Designated Federal Officer, NIST Visiting Committee on Advanced Technology
Mr. Jason Matusow, Chair, NIST Visiting Committee on Advanced Technology
Dr. Mark Pierpoint, Vice Chair, NIST Visiting Committee on Advanced Technology