**NSB-2024-46**
February 7, 2024

**APPROVED MINUTES**
**OPEN PLENARY SESSION**
**492nd MEETING**
**NATIONAL SCIENCE BOARD**

**National Science Foundation (NSF)**
**Videoconference**
**December 4 - 5, 2024**

**Key Points**

**Session One, December 4, 2024, 10:00 am to 3:00 pm, EDT**

**Chair's Remarks**

- **Meeting Agenda and NSB Goals** - To contextualize NSB meeting activities and stay focused on NSB priorities, Chair Dario Gil shared a slide comprised of goals for NSB for the 2024-2026 term linking select agenda items to demonstrate the Board's progress to balance discussion between the Board's dual roles. Gil expressed interest in keeping NSB agendas and discussions at the right strategic level, centered on core responsibilities and leveraging Members' collective expertise. The Chair highlighted the non-partisan nature of the Board's work and the spirit of its dual mandate as well as science and engineering.
- **Retreat report** - Gil presented a high-level summary of the NSB's annual retreat held in September 2024 in Saratoga Springs, New York. Along with sessions and team building, Members visited two sites.
    - Members visited the Albany Nanotech Complex and saw how public sector semiconductor research can thrive through partnerships among industry, academia, and international collaborators. A stakeholder panel provided further insights into these multi-sectoral relationships.
    - Members toured the 109th Airlift Wing at Stratton Airforce Base, focusing on the LC-130s, crucial for NSF science in Antarctica and Greenland. Hearing firsthand from the dedicated team about the challenges of maintaining these aging planes was eye-opening, especially regarding their need for outdated parts.
- **Chair's activities**
  Gil shared highlights of his NSB-related activities focused on *Connected Horizons (link)* since the July 2024 NSB meeting including:
  Meetings with:
    - the Science and Technology Action Committee (STAC)
    - the Center for Strategic and International Studies (CSIS)
    - the American Chemical Society CEO, together with Victor McCrary
    - leaders in the Department of Defense, including the DARPA Director and the Secretary of the Air Force.

  Presentations to:

- NASEM's Board on Higher Education and the Workforce about NDEA 2.0 (Keivan Stassun led a subsequent discussion)
- NASEM's Committee on Science, Engineering, Medicine, and Public Policy (COSEMPUP)
- Interviews with Nature and Issues in Science & Technology

- Swearing-in ceremony
  Gil led a ceremonial swearing-in of the new Members, Class of 2024 – 2030. New Members include:
  - Yolanda Gil, Information Sciences Institute, Fellow and Senior Director for AI and Data Science Strategy
  - Juan Gilbert, Andrew Banks Family Preeminence Endowed Professor, University of Florida
  - Jeffrey Isaacson, President and Chief Executive Officer, Universities Space Research Association
  - Willie May, Vice President for Research and Economic Development, Morgan State University
  - Joan Ferrini-Mundy, President, University of Maine
  - Alondra Nelson, Institute of Advanced Study, Harold F. Linder Professor in the School of Social Science
  - Sarah O'Donnell, Chief Engineer for Naval Programs, MITRE Corporation
  - Ryan Panchadsaram, Partner and Technical Advisor of Kleiner Perkins, a Venture Capital company.

**Director's Presentation on NSF's multi-sectoral partnerships**

- Following the Chair's remarks at the July 2024 meeting on the changing landscape of science and technology (S&T), the Director updated Members on partnerships across sectors.
- The Director described the two broad types of NSF partnerships – direct and catalyzed – the estimated program investments from 2019 to 2024, and NSF partnership goals by 2030.
- The Director's presentation included examples of programs where NSF works in partnership and an interactive map showing types of partners and the geographic scope. Working in partnership is not new to NSF, but programs such as the Regional Innovation Engines have supercharged NSF's partnership mindset. NSF's approach to partnerships has matured and is becoming more systemic and systematic.
  - **Direct partnerships** - NSF works with federal, state, or municipal government agencies, industry, philanthropic organizations, and international partners to build resources to fund research proposals on topics of common interest. From 2019 to 2024, direct partnerships have grown from about $112 to $207 million.
  - **Catalyzed partnerships** - NSF invests and other agencies or organizations express an interest in co-investing. From 2019 to 2024, catalyzed partnerships have grown from about $129 to $562 million. Some partnerships are a combination of the two types.
- NSF's goal is to double the direct partnerships and more than double the catalyzed partnerships by 2030 for an estimated total of $1.5 billion of leveraged impact.
- NSF leadership and staff continue to discuss and work through the needs of different types of partners, particularly industry partners, impediments to partnerships, and strategies for leveraging NSF authorities for successful partnerships.

- Gil noted the significant growth of the Foundation's partnerships and emphasized the acceleration in technological and scientific fields and the importance of flexibility to adapt to and navigate effectively in a changing world.

**NSB Panel – Vision for American Science and Technology (VAST)**

Gil introduced four members of the Vision for American Science and Technology (VAST) Task Force, who joined the meeting to share their policy ideas for a globally competitive S&T enterprise.

**Moderator**

- Sudip Parikh, Chief Executive Officer of the American Association for the Advancement of Science and Executive Publisher of Science Journals.

**Panelists**

- France Cordova, President of the Science Philanthropy Alliance (and 14th Director of the NSF)
- Monica Dus, Associate Professor in the Department of Molecular, Cellular, and Developmental Biology, University of Michigan
- Marcia McNutt, President of the National Academy of Sciences
- Darío Gil, Senior Vice President and Director of Research, IBM

**VAST Task Force, goals and related deliverables.**

- Beginning in September 2024, VAST leaders pulled together 70 volunteers comprised of a national cross-section of leaders in business, finance, government, and scientific disciplines. VAST membership includes politicians and leaders at the state and local levels who are deeply connected to local communities.
- **VAST deliverables** – 1) an inspirational and aspirational vision for American S&T that builds on the foundation of the last 80 years in science, and 2) a short list of tactical recommendations.

**Panelist Remarks**

Panelists presented highlights of the history of S&T in the U.S. over the last 80 years, the changes, and what led to the work of the task force, noting successes that emerged from the post-World War II "Endless Frontier" and changes since then, including:

  - New players and tools offer both promise and threat.
  - The interplay of basic and applied research has changed requiring a diverse set of approaches to scientific advancement.
  - New fields and technologies have sped up the discovery engine worldwide (quantum computing, AI, social sciences, etc.).
  - An increased understanding that talent is everywhere.
  - The increased scale and complexity of R&D has resulted in policy efforts that lack coordination and can dissipate rather than collect energy.
  - VAST asks whether today we have clarity on who or what institutions should lead.
- VAST is working on a new social contract that will require awareness, incisiveness in its proposed solutions, and partnership. The desire of the task force is that government leadership can foster such partnerships on projects at a large scale. This will require innovation in the partnership domain.

**VAST recommendations**

VAST began its work by asking "what fundamentally do we need to improve to take advantage of our strengths and remain competitive internationally?" Members identified the following three major areas for action and four strategic actions.

- Reduce inefficiencies, break down barriers that hinder progress, and collaborate better across sectors.
    - E.g. Optimize the tax codes to enhance competitiveness, strengthen national security, and create better-paying jobs.
- Empower the strongest, most adaptable workforce to benefit the American people and sustain leadership of S&T.
    - E.g. Empower local leaders to align American resources through regionally based S&T economic generators or incubators (such as NSF's AI Centers and the Advanced Technology Education program).
    - E.g. Keep U.S.-educated international talent in the U.S. and proactively recruit top talent from overseas.
- Drive breakthroughs with targeted commitments to critical infrastructure and maintain investments to stay on the cutting edge.

Gil concluded the presentation portion with an observation that this approach is and should be a forward-looking one as opposed to a defensive one. He noted that the work ahead is to identify and leverage our strengths as a nation, the work that must be done together, and then partner to scale those programs that work to a new / different level.

**Q&A**

- Members asked questions and engaged in discussion with panelists on a range of topics from the roles of federal and state or local authorities to guide, support, and execute the proposed strategic actions, how best to attract and retain international and domestic STEM students, and how to most effectively communicate a vision that appeals to national and state / local policy and decision-makers.
- Members offered recommendations to VAST including connecting with federal agencies that already have ongoing initiatives to attract and recruit international STEM students from Africa and Latin America such as the Department of Defense and Department of Energy, considering the types of data needed to shed light on how to keep U.S. developed talent, and focusing first on inspiring and supporting domestic students to pursue STEM education and careers, then international students and career scientists to meet the growing needs of the U.S. S&T ecosystem.

**NSB Panel – National Defense Education Act 2.0 (NDEA 2.0)**

Gil introduced the discussion on NDEA 2.0 noting the growing bipartisan interest of Congress and the recent release of the Committee on Science, Technology, Engineering, and Math Education (CoSTEM) federal strategic plan for advancing STEM education and cultivating STEM talent. Both the CoSTEM plan and NSB's NDEA 2.0 proposal recognize the need for multi-agency and multi-sector partnerships and ecosystem development, including international counterparts, to achieve a vision for STEM in America.

NSB NDEA working group members include Joan Ferrini-Mundy, Julia Phillips, Keivan Stassun, and Heather Wilson, and Darío Gil.

**Brief background and update** of NSB's work related to the NDEA 2.0.

- Inspiration for NDEA 2.0
    - The U.S. currently faces a domestic STEM talent shortage – unfilled job openings, shortages of workers in science fields
    - Reliance on foreign STEM talent renders the U.S. vulnerable
    - Incentives are needed to encourage more domestic students and workers to pursue studies and careers in STEM
- NDEA 2.0 is envisioned to be a bi-partisan, multi-sectoral, nationwide effort to leverage federal dollars to meet short-term workforce needs and build the STEM talent engine of the future focused on three areas:
    - Investing in local STEM education and workforce ecosystems
    - Investing directly in STEM students and workers in critical areas
    - Addressing the STEM teacher shortage.

**Panelists** from industry, philanthropic, and state organizations and agencies shared the needs and opportunities of their sectors as it relates to a NDEA 2.0. The purpose of this engagement was to help the Board refine its ideas and build a cross-sector coalition to advocate for NDEA 2.0 to address the domestic STEM talent crisis.

- Tsu-Jae King Liu, Dean of the UC Berkeley College of Engineering
- Maria Klawe, President of Math for America
- Nick Moore, Director of Governor's Office of Education and Workforce Transformation, State of Alabama

**Highlights of discussion**

**What do you see as the most urgent STEM workforce need in your sector that NDEA 2.0 should address?**

- A STEM pipeline capable of filing the in-demand jobs (state)
- Increase in the number of math and science teachers in PreK – 12 and students who pursue STEM majors in college (philanthropy)
- Increase in opportunities for the untapped talent in underserved regions of the country (industry)
- Incentives for private industry to participate in these programs including federal support (industry)
- Reskill and upskill workers to fill the many current job openings (industry)

**What existing programs could be scaled to address those needs?**

- STEM internships (industry and philanthropic), supportive services such as transportation, childcare, and student financial aid (Alabama state).
- Assistance to military veterans, dependents, and retirees such as robust scholarship programs, licensure reciprocity, school choice opportunities for children of military families and help with translating Joint Service Transcripts / military occupations into civilian job classification codes so veterans can compete in the labor market (Alabama state); Programs targeting veterans for reskilling into the semi-conductor industry (industry).
- Moore described the Alabama Triad program – which he thought might be the first full-scale talent marketplace (alabamatriad.com). This marketplace is a credential registry, a skills-based job description, and a learning and employment record that allows an individual's competencies earned / gained to be translated and matched with in-demand jobs that are

based on those qualification frameworks that an employer can customize and then post. Alabama is currently working across state lines because commuting patterns do not stop at state lines. The system uses AI models to reduce all learning assertions to competencies and then match those with individual students and job seekers who happen to have those skills.

**To solve the domestic STEM talent crisis, what should be included in NDEA 2.0 that would excite investment from different sectors?**

- Increase more computer science PhDs to address the shortage of teachers in middle and high school (philanthropy)
- Fund graduate fellowships so they are competitive with industry (philanthropy)
- Government investment in local STEM education and workforce ecosystems (industry)
- Government investment directly into students through matching programs to increase a return on investment and elevate the appeal of STEM fields for students (industry)

**Q&A**

Discussion covered the need for wraparound services in Alabama for workforce transition, including childcare, transportation, and financial literacy. It addressed scaling veteran STEM job programs nationally and highlighted areas with little STEM exposure, emphasizing the importance of role models. Members asked Moore about universities partnering with trade schools, to which he attributed the success to strong leadership and cash incentives.

**Culture – Competition and Collaboration**

Members asked panelists how to address aspects of American culture that could be counterproductive to partnering, such as individualism and competitiveness.

- Teach that results are better through collaboration
- Establish incentives for collaboration
- Encourage empowerment
- State-level institutions can establish an environment and space where competitors (industry) can collaborate on relevant issues.

Panelists were asked which one initiative they would recommend scaling up nationally if conditions were right:

- Full-scale talent marketplace that uses AI and machine learning to connect talent with opportunity using competency statements
- Increase the number of STEM teachers
- Increase public awareness about job opportunities in STEM, education, and appreciation of STEM careers.

**Measuring success**

Members and panelists talked about how to measure success and sustain momentum as it relates to the initiatives discussed. Panelists emphasized the following:

- Political continuity / Alabama has had the same governor for about 10 years
- Sustainable federal and state funding is important
- Outcomes-based evaluation; Demonstrating achievement of goals and return on investment
- Continue to use specific metrics such as NSB's Indicators as a guide and work to reverse negative trends / and economic indicators

Phillips concluded the session by noting that NSB will continue seeking ideas on how to build out NDEA 2.0 and invited listeners to reach out and join the coalition.

***Committee reports***

**Committee on Strategy (CS)**

Chair Roger Beachy introduced members of CS and presented the Committee charge for the benefit of new NSB Members then turned to highlights of Committee work since the July 2024 NSB meeting.

**Highlights**

The Committee met on November 7, 2024, to hear from NSF about plans and timelines for developing NSF's 2026-2030 Strategic Plan. Beachy praised NSF's goal of making the next strategic plan more streamlined and actionable and is pleased that NSF intends to engage CS early and often throughout the process.

**NSF will:**

- Bring NSF's Strategic Plan into tighter alignment with the strategic efforts that the Foundation had been pursuing in parallel (e.g. *Vision 2030*, the Director's pillars, and Administration priorities)
- Drive implementation plans such as the cross-agency thematic roadmaps, the agency's annual budget, and the annual agency performance plan
- Improve its approach to data and measurement
- Enhance its engagement with internal and external stakeholders including broadening the set of entities with which NSF engages to include other federal agencies and deepening engagement with NSF staff, NSB, and the research community

**Timeline**:

CS will meet with NSF on December 18 to begin the 15-month process of engagement to develop the agency's next strategic plan

**Committee on External Engagement (EE)**

Chair Dorota Brzezinska introduced members of EE and presented the Committee charge emphasizing that a key part of NSB engagement is leveraging individual Board Member connections across sectors. The Chair then shared highlights of the EE open meeting on October 18, 2024, where Committee Members discussed engaging with the new Congress, potential board initiatives, and events around NSF's anniversary.

**NSF's 75 Anniversary – in 2025**

- EE Members anticipate an ambitious schedule of activities related to NSF's 75$^{th}$ anniversary in 2025. Events will highlight the agency's contributions since 1950, and what it will deliver over the next 75 years, and engage with allies across sectors to advance new multi-sectoral approaches that leverage strengths in the S&T ecosystem.
- NSB is coordinating with NSF's Office of Legislative and Public Affairs (OLPA) to plan joint and separate activities. Brzezinksa shared NSF's draft calendar of events and encouraged Members to commit to at least three events. She reminded Members that they can leverage existing or already-scheduled speaking events or host an event at their institutions.

- Amanda Greenwell (OLPA) flagged an event scheduled in May one week before the NSB May Board meeting. Gil and NSBO John Veysey offered that the Board office would explore moving the date of the Board's May meeting to better coincide with the NSF event.
- Members offered a few recommendations and additional ideas for engagement. Greenwell agreed to continue adapting the calendar.
- **Limited Resources -** The Director asked Members interested in participating in events or have ideas for additional events to communicate with NSBO Nadine Lymn and OLPA's Greenwell. He also cautioned that events incur recourses that may or may not be available and that Members should also think about resource generation to do more extensive activities and events.

**Committee on National Science and Engineering Policy (SEP)**

Chair Julia Phillips summarized the Board's duty to publish the *State of U.S. Science and Engineering* report (scheduled for March 2026) and outlined the role of Members in reviewing the Summary and thematic reports. She shared how the *Indicators* report has evolved since 2016, noting that recent changes will enable a deeper policy focus. Topics/policy work already identified are skilled technical workforce and STEM instructional workforce. Phillips provided an update on the three thematic reports—talent, discovery, and translation/impact—and encouraged Members to visit the NSB website for recent policy pieces and to share more ideas.

**Director's Remarks**

- **Updates from the Hill –** NSF is working under a continuing resolution and within the 2024 budget of $9.06 billion. The President's request was $10.83 billion, the House mark was $9.25 billion, and the Senate mark was $9.55 billion.
- **Highlights of NSF thematic priorities -** Anchoring his presentation to NSF's three strategic objectives / pillars – Strengthening the Established NSF, Inspiring Missing Millions, and Accelerating Technology and Innovation - The director highlighted several programs and investments, and impacts to exemplify progress toward each objective including drawing a connection between many Nobel Prize winners and NSF support early in their career.
    - The Director congratulated NSB Member Keivan Stassun on receiving the MacArthur Fellows Award 2024 and acknowledged some of Stassun's career highlights beginning with an NSF Graduate Research Fellowship from NSF in 1990.
- **Engagements -** The Director shared examples of his many engagements since the July Board meeting demonstrating NSF's support for, connection to, and partnerships across sectors; a trip to Kansas with Senator Moran; meeting with Senator Lucas; visits to the University of Oregon, Oregan State University, and Carnegie Mellon University; speaking at the EPSCoR National Conference; attending the global center announcement in London and participating on a panel at the TIP Roadmap Summit with Senator Young and representative Fleischmann and the Chair of the Energy Natural Resources Committee on December 3, 2024.
- **Senior Staff Introductions and farewell**
    - David Berkowitz, Assistant Director of Mathematical and Physical Sciences
    - David Barker, division of Social and Economic Sciences
    - Eric Miller, division of Engineering Education and Centers
    - Jesse Simons, division of Financial Management
    - John Hannan, Deputy in the Division of Atmospheric and Geospace Sciences
    - Camille McKayle, Deputy in the division of Equity for Excellence in STEM
    - Barbara Tim-Brock, Section Head in the Division of Translational Impacts
    - Kerri Dugan, Section Head in the Division of Innovation and Technology Ecosystems

- Miriam Deutsch, Deputy in the Division of Materials Research
- Margaret Benoit, Executive Officer in the Office of Polar Programs

The Director expressed gratitude and bid farewell to two leaders at the NSF: Dr. Alex Isern, who most recently served as the Assistant Director of the Directorate of Geosciences, and Kendra Sharp, Office Head of the Office of International Science and Engineering.

**Session Two, December 5, 2024, 9:00 am to 1:10 pm EDT**

**Chair's Opening Remarks**

Gil opened the meeting with a preview of the agenda for the day.

**NSB Panel – Center for Strategic and International Studies (CSIS)**

- Gil introduced the panelists and the topic of institution building as it relates to multi-sector partnerships and investments. He highlighted a few key features of the changed S&T landscape and noted that a federal government national S&T strategy is likely to be insufficient requiring mechanisms to coordinate and align investments across all sectors.
- The purpose of this discussion was to think about how to bring sectors together and coordinate and align their investments effectively, who should participate in and lead such an effort, and how to organize and deliver a modern S&T and innovation strategy.

**CSIS Panelists**:

- **Navin Girishankar -** president of the Economic Security and Technology Department at the Center for Strategic and International Studies (CSIS)
- **Andrew Reamer** - Research Professor at the George Washington Institute of Public Policy at George Washington University
- **Erica Fuchs -** a Kavčič-Moura Professor in the Department of Engineering and Public Policy at Carnegie Mellon University and a founding Director of the National Network for Critical Technology Assessment, funded by the TIP Directorate, and which culminated in the report Securing America's Future: A framework for Critical Technology Assessment

**Current State**

- The U.S. has a federated S&T ecosystem which reflects organic growth, institutional diversity, complexity, and probably some redundancy. The range of existing institutions includes private or market-organized institutions, public institutions, and everything in between. Some of these institutions address national priorities and others local priorities.
- The U.S. has a rich institutional mosaic. Creating another national institution will not solve the problem.

**Institutional Models - Types and some examples**

- Fast acting and reactive to specific issues (e.g. Operation Warp Speed, the Manhattan Project)
- Efforts by the federal government to change how markets work (e.g. Bayh-Dole and Stevenson-Wydler where some rules are put into place, so when the government funds research it is transformed into the marketplace without Congress having to have a role every time).
- Government influences the private sector with money (i.e. NSF, DARPA – policies that mandate federal cooperation with external stakeholders such as state, local governments, and the private sector, and academia).

- Federal government bringing people together (e.g. TIP Roadmap Summit).
- State and regional STI strategies to convene people from business, government, and academia to come up with a consensus strategy.
- Purpose-built non-profits for R&D and R&D commercialization such as NATCAST, and tech hubs consortia such as New York Creates, the Albany Nanotech Complex.

**Five tests** to determine whether institutions are **"fit for purpose"**.

1) How effective is an institution at goal setting and are the goals at the right level? (most important)
2) How effective is collaboration and coordination across public and private sectors including stacking capital to fund various goals whether it is R&D, R&D commercialization, or scaling?
3) How are national security concerns monitored and mitigated?
4) Is evaluation occurring in real-time – what is working and not working?
5) Are we equipped to make course corrections? Acknowledging failure, withdrawing support, and improving continuously as needed?

**Analytics**

Fuchs shared an assessment and explained that it is possible to quantify national security, health, economic, and labor vulnerabilities and prioritize action, like businesses do (*National Network for Critical Technology Assessment*), value and prioritize interventions, and help match tasks of workers to the capabilities in metropolitan statistical areas. (*National Network*). These analytics will help identify where funding should be focused.

**Background for Analysis**

- The *CHIPS and Science Act* (CHIPS) mandated that NSF and its directorate for Technology, Innovation, and Partnership (TIP) identify and annually review and update a list of not more than five U.S. societal, national, and geostrategic challenges that may be addressed by not more than 10 key technology focus areas.
- CHIPs also called for a new federal capacity to fortify the nation's leadership and abilities to determine policies and investments to ensure national security, global competitiveness, economic security, and societal well-being.
- TIP responded by funding an effort to develop a framework for this effort going forward that culminated in "Securing America's Future: A Framework for Critical Technology Assessment". The effort included leaders from academia, government, and industry.
- This is a pilot analysis. Additional resources would be needed to do this systematically.

**Reflection**

Gil lauded the presentation for being focused on outcomes and noted that being more analytical and focusing on S&T investment outcomes will be a catalyst for partnerships. He encouraged NSB Members to think more about the quantification of outcomes, the return on investment, and how to articulate that to different stakeholders. He emphasized a point made earlier that states have a much more sophisticated and rigorous process for determining outcomes than the federal government.

Gil asked his fellow Members to imagine non-profits in each state serving as institutional vehicles that could coordinate investments, manage / protect taxpayer dollars, and provide governance, accountability, and transparency within each state, similar to NY creates. The non-profits in each

state would form a network which then the federal government and its programs would recognize as part of the S&T ecosystem.

**Q&A**

Members engaged in an energetic question-and-answer session with the panelists on topics covering coordination across institutions and the analytical model/study presented by Fuchs.

**Institutions**

**Challenges and Opportunities**

- Incentives may be needed to encourage regional collaboration
- Better coordination of investments at the state level and the federal level
- The U.S. Chamber of Commerce Foundation's Talent Pipeline Management program, TPM, is a bottom-up collaborative approach between industry and community colleges and universities at the local level assessing workforce capabilities. It is an example of how the state can create space for local competitors to collaborate.

**Assessment of workforce capabilities**

Keivan Stassun asked about methods for rapidly assessing the capabilities of workers and the types of education and retraining. Fuchs offered two sources of additional information on this topic:

- Erik Brynjolfsson at the Stanford Institute for Human-Centered AI and workforce capabilities
- Dashun Wang and his work on the under-utilization of AI in the acceleration of science and bottlenecks.

**Analytics / Assessment**

- Questions ranged from data sources to the bounds of this analytical model to inform decisions about economics, culture, or geopolitics.
- In addition to guiding technology investments, the TIP Directorate is working to obtain real-time data that demonstrates NSF's return on investment in projects like the AI Institutes and the Regional Innovation Engines program. This includes tracking metrics such as the number of individuals funded, and the jobs created as a result of this funding. (TIP Assistant Director)
- The assessment presented by Fuchs is a pilot. Additional resources are needed to do this systematically. The Director shared that work is not just resident in TIP and similar work is happening in other directorates.
- Comparable work is being done by the Department of Defense (Navy, Space Force, Intelligence). Any new structure that looks at scientific or technical surprise or the tools to strengthen the U.S. supply chain will probably be very different from what has historically been done by the federal government and could be an area where the NSB could assist.

***Committee Reports***

**<u>Committee on Awards and Facilities (A&F)</u>**

Chair Keivan Stassun summarized the discussion at the A&F meeting on December 3, 2024.

**Antarctic Science and Engineering Support Contract (ASESC)**

- Stassun recapped NSB's engagement around the ASESC during meetings held in February and July 2024 and recent NSF public responses to the over 300 comments and questions received on the draft request for proposal, including comments and questions from Board members.
- Stassun said he believed that NSF appropriately followed the contracting process and exercised due diligence. Julia Phillips expressed concern that past performance was ranked lowest among non-price factors to be considered in the procurement process.
- The committee agreed that it was appropriate for NSF to continue with the procurement process.

**Indigenous Community Engagement**

A&F received an update from NSF's Caroline Blanco, Assistant General Counsel, and Luca Rizzi, Program Officer in the Astronomy Division on NSF's engagement with federally recognized indigenous communities.

**Key Points:**

- NSF established its Tribal Consultation and Engagement Working Group (TCEWG) in 2021 in response to a presidential memorandum to advance how NSF engages with tribal communities. NSF's efforts include:
    - developing new policies that tribes approve research proposals that use resources significant to their communities; and
    - inclusion of native approaches and planning for the environmental impact study for the Thirty Meter Telescope (TMT).
- Discussion of lessons learned from other agencies about effectively engaging with indigenous, native, and other local communities, and NSF's work to date that can be applied to future facilities, proposals, and current sites that are on tribal land or that impact resources significant to tribal or Indigenous communities.
- NSF is a leader within the government in this sort of engagement.
- Members' questions focused on the TMT environmental review, implications for other NSF-funded facilities, efforts to standardize approaches across U.S. federal agencies, themes that emerged from listening sessions, and NSF's internal organization related to Indigenous engagement efforts.

**NSB-NSF Committee on Merit Review (MRX)**

- Chair Wanda Ward outlined NSB's responsibilities as they relate to the Merit Review process and criteria including developing the policy, setting the criteria, providing principles and elements essential for NSF's proposals, proposers, and reviewers, and periodically reviewing the process for change and improvement.
- Ward also provided details about the Commission's work which began in late 2022 and has resulted in a set of policy recommendations for a changed S&T landscape. A draft is expected to be available for a review by all Commission Members in January 2025 and approval by NSB at the February 2025 meeting.

## Follow-up Items for NSB

None.

## Motions / Votes

Members voted unanimously to pass the Antarctic Support Contract resolution (*NSB-2024-44*).

## Attendance on December 4-5, 2024

| Members Present | Members Present | Members Absent |
|---|---|---|
| Dario Gil, *NSB Chair* | Marvi Ann Matos Rodriguez | Aaron Dominguez |
| Victor McCrary, *NSB Vice Chair* | Sarah O'Donnell | Matthew Malkan |
| Sudarsanam Babu | Ryan Panchadsaram | Alondra Nelson |
| Roger Beachy | Julia Phillips | Willie May* |
| Joan Ferrini-Mundy | Scott Stanley | |
| Yolanda Gil | Keivan Stassun | |
| Juan Gilbert | Merlin Theodore | |
| Dorota Grejner-Brzezinska | Wanda Ward | |
| Jeffrey Isaacson | Bevlee Watford | |
| Melvyn Huff | Heather Wilson | |
| Jeffrey Isaacson | Sethuraman Panchanathan, ex officio | |

*Absent on December 4, 2024, Session One

There being a quorum, the National Science Board convened in person and via videoconference with NSB Chair Darío Gil, presiding in Open Plenary Sessions:

- December 4, 2024, beginning at 10:00 a.m. and adjourning at 3:00 p.m. EDT (Session 1).
- December 5, 2024, beginning at 9:00 a.m. and adjourning at 1:10 p.m. EDT (Session 2).

## Approval status of previous meeting minutes

July 24-25, 2024, 2024, Open Plenary Session Approved: _X_Yes __No

## Notes (optional)

N/A

2/12/2025

X Andrea Rambow

Andrea Rambow

Signed by: ANDREA I RAMBOW

Executive Secretary to the National Science Board Office