

2017 Federal Facility Workshop:

Advancing America's Economy: Building Infrastructure Partnerships at National Security Laboratories

Workshop Proceedings

SPONSORED BY THE PARTNERSHIPS WORKING GROUP OF THE
NSTC SUBCOMMITTEE ON NATIONAL SECURITY LABORATORY
RESEARCH, DEVELOPMENT, TEST AND EVALUATION FACILITIES AND INFRASTRUCTURE
AND
THE NATIONAL ACADEMIES OF SCIENCES, ENGINEERING, AND MEDICINE
FEDERAL FACILITIES COUNCIL



November 2017

Overview

On October 24, 2017, the National Science and Technology Council (NSTC) Subcommittee on National Security Laboratory (NSL) Research, Development, Test and Evaluation (RDT&E) Facilities and Infrastructure (F&I) hosted the second annual Federal Facility Workshop featuring several expert panels discussing public-public and public-private partnerships in the science, technology, and innovation (ST&I) community at National Security Laboratories. The event brought together over 70 F&I experts from across government, industry, and academia to discuss common challenges and share best practices.

The Partnerships Working Group of the Subcommittee on NSL RDT&E F&I partnered with the National Academies of Sciences, Engineering, and Medicine Federal Facilities Council to cosponsor the workshop at the National Academy of Sciences Main Building in Washington, DC. Lead member organizations of the 2017 Partnerships Working Group included the White House Office of Science and Technology Policy, the Office of the Director of National Intelligence, and the Department of Health and Human Services-U.S. Food and Drug Administration.

The workshop provided a venue for F&I stakeholders to discuss interagency and multi-party partnering opportunities that support the modernization of the national security science and technology enterprise. Expert panelists discussed four themes: developing innovation ecosystems and partnerships, leveraging partnerships to enhance RDT&E mission and capabilities, technology transfer and development, and accelerating economic and local impacts. The workshop also provided a forum for professionals to explore common partnering challenges and suggest potential solutions that could benefit the entire F&I community.

Seven broad challenges and associated recommendations were collected from the workshop roundtable discussions. The challenges and recommendations are a consolidation of the three roundtable groups' discussions of common F&I challenges in interagency and public-private partnerships at National Security Laboratories. The recommendations stem from suggested methods to address the challenges discussed throughout the workshop. The Subcommittee and the Working Group will consider these recommendations in formulating priorities and activities to advance national security RDT&E F&I partnerships and collaborations going forward.

ABOUT THE OFFICE OF SCIENCE AND TECHNOLOGY POLICY

The Office of Science and Technology Policy (OSTP) was established by the National Science and Technology Policy, Organization, and Priorities Act of 1976. OSTP's responsibilities include advising the President in policy formulation and budget development on questions in which science and technology are important elements; articulating the President's science and technology policy and programs; and fostering strong partnerships among Federal, State, and local governments, and the scientific communities in industry and academia. The Director of OSTP also serves as Assistant to the President for Science and Technology and manages the NSTC. More information is available at www.whitehouse.gov/ostp.

ABOUT THE NATIONAL SCIENCE AND TECHNOLOGY COUNCIL

The National Science and Technology Council (NSTC) is the principal means by which the Executive Branch of the U.S. Government coordinates science and technology policy across the diverse entities that make up the Federal research and development (R&D) enterprise. One of the NSTC's primary objectives is establishing clear national goals for Federal science and technology investments. The NSTC prepares R&D packages aimed at accomplishing multiple national goals. The NSTC's work is organized under five committees: Environment, Natural Resources, and Sustainability; Homeland and National Security; Science, Technology, Engineering, and Mathematics (STEM) Education; Science; and Technology. Each of these committees oversees subcommittees and working groups that are focused on different aspects of science, technology, and innovation. More information is available at www.whitehouse.gov/ostp/nstc.

ABOUT THE COMMITTEE ON HOMELAND AND NATIONAL SECURITY

The Committee on Homeland and National Security (CHNS) was established by action of the NSTC. Its purpose is to advise and assist the NSTC to increase the overall effectiveness and productivity of Federal research and development efforts in the area of science and technology related to homeland and national security.

ABOUT THE SUBCOMMITTEE ON NATIONAL SECURITY LABORATORY RESEARCH, DEVELOPMENT, TEST AND EVALUATION FACILITIES AND INFRASTRUCTURE

The Subcommittee on National Security Laboratory (NSL) Research, Development, Test and Evaluation (RDT&E) Facilities and Infrastructure (F&I) was established by action of the NSTC under the CHNS. Its purpose is to advise and assist the NSTC on the coordinated development of national security RDT&E F&I at Federal laboratories across the Federal Government. The Subcommittee focuses on communicating the importance of F&I for doing national security research and development with a strategic F&I plan, developing best practices, benchmarking, and collaborating.

ABOUT THE PARTNERSHIPS WORKING GROUP

The Partnerships Working Group was established by action of the NSTC CHNS, Subcommittee on NSL RDT&E F&I. The Working Group's purpose is to identify and develop opportunities that support the formation of national security F&I partnerships to better utilize Federal resources. The Working Group focuses on the development of best practices and lessons learned; improving planning, coordination, and communication to identify common mission capabilities; and developing shared funding mechanisms to form new RDT&E F&I partnerships.

ACKNOWLEDGEMENTS

The Partnerships Working Group acknowledges Dan Bernstein, Laurie Dacus, G. James Herrera, Michelle Hindman, Vanessa Peña, and Chelsea Stokes of the IDA Science and Technology Policy Institute for providing subject-matter expertise to inform the design and structure of the workshop, facilitating roundtable discussions, capturing workshop outputs, and developing this proceedings document. The Partnerships Working Group also expresses its gratitude to all the speakers and moderators that participated in the workshop. Photo credits to G. James Herrera and Michelle Hindman.

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1. Workshop Background

The Subcommittee on National Security Laboratory (NSL) Research, Development, Test and Evaluation (RDT&E) Facilities and Infrastructure (F&I) (herein “Subcommittee”), established in 2015 under the National Science and Technology Council (NSTC) Committee on Homeland and National Security (CHNS), and the National Academies of Sciences, Engineering, and Medicine Federal Facilities Council cosponsored a workshop to highlight successful collaborations in F&I from across the Federal science and technology enterprise. The workshop was held at the National Academy of Sciences Main Building in Washington, DC, on Tuesday, October 24, 2017, from 8:00 AM to 5:00 PM. The event brought together more than 70 F&I experts from across 23 Federal departments, agencies, sub-agencies, and laboratories and a number of non-Federal organizations, including State government and industry.

The goals of the workshop were as follows:

- Learn how infrastructure partnerships can lead to impacts in the ST&I and local communities
- Bring together experts from across government, industry, and academia who are building new ST&I communities
- Open a dialogue on interagency and public-private partnering challenges, and share examples of successful partnerships and best practices amongst a variety of stakeholders

The event featured several experts speaking on behalf of successful NSL F&I partnerships from across the Federal Government. Presenters included representatives from the following organizations:

- National Aeronautics and Space Administration (NASA) Research Park, NASA Ames Research Center
- Livermore Valley Open Campus (LVOC), Lawrence Livermore National Laboratory (LLNL)
- Sandia National Laboratories (SNL), Department of Energy (DOE)
- Center for Nanoscale Science and Technology (CNST) NanoFab, National Institute of Standards and Technology (NIST)
- National Interagency Confederation for Biological Research (NICBR)

- U.S. Army Research Laboratory (ARL) Open Campus
- Naval Surface Warfare Center (NSWC), Crane Division
- Agricultural Research Service (ARS), Department of Agriculture (USDA)
- Office of the Assistant Secretary of Defense, Chemical and Biological Defense, Department of Defense (DoD)
- Chemical and Biological Defense (CBD) Division, Department of Homeland Security (DHS)—Homeland Security Advanced Research Projects Agency (HSARPA)
- Wright Brothers Institute (WBI—an Air Force Research Laboratory (AFRL) partner)

Workshop discussion results and recommendations were collected by staff of the Institute for Defense Analyses (IDA) Science and Technology Policy Institute (STPI), and are organized in the following manner: speaker and panel summaries (Chapter 2), results from roundtable discussions (Chapter 3), and next steps (Chapter 4). Appendices include a list of participants and workshop schedule (Appendix A), speaker/panelist biographies (Appendix B), and topics offered to facilitate roundtable discussions (Appendix C).

2. Keynote Speaker and Panel Summaries

Panels were formed around the following themes: (1) developing innovation ecosystems and partnerships, (2) leveraging partnerships to enhance RDT&E mission and capabilities, (3) technology transfer and development, and (4) accelerating economic and local impacts. Representatives from the Office of the Director of National Intelligence (ODNI), Department of Health and Human Services (DHHS) Office of the Assistant Secretary for Preparedness and Response and the Food and Drug Administration (FDA), and NIST moderated each panel. Presenters were organized into thematic discussion panels with a time allotted for questions and answers at the end of the presentations.

Additionally, the workshop featured two keynote speakers: Dr. Jagadeesh Pamulapati, Director of the Laboratories Office within the Office of the Assistant Secretary of Defense for Research and Engineering in the Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics at DoD; and Mr. Jamie Johnson, Deputy Director of Research & Development Partnerships, Science and Technology (S&T) Directorate at DHS. Refer to Appendix A for a list of participants and workshop schedule. Refer to Appendix B for keynote and panel speaker biographies.

A. Keynote Speech Summaries

1. Morning Keynote: Dr. Jagadeesh Pamulapati

During the workshop's morning keynote address, Dr. Jagadeesh Pamulapati, Director of the Laboratories Office, provided an overview of various types of partnerships from across the DoD laboratory enterprise to open the discussion of comparative partnership strategies. The DoD has over 60 laboratories, engineering centers, and research centers worldwide staffed by approximately 40,000 scientists and engineers. These laboratories derive exceptional value and technological advantage from the unique infrastructure capabilities and relationships they provide. Among many partnership models, the DoD engages in integrated partnerships, which leverage collaborative research spaces (such as ARL Open Campus and AFRL Maker Hub), and academic partnerships, which build both RDT&E capabilities and train the next generation of researchers. The DoD emphasizes technology transfer spinning innovations out into the commercial sector, as well as bringing in commercial technologies to advance DoD laboratory initiatives. Dr. Pamulapati concluded by articulating the major obstacles facing NSLs, including: (1) recognizing regulatory and policy issues within and among organizations and (2) overcoming security barriers, such as clearance and access to research information, to promote collaboration.

He encouraged further discourse in the panels and breakout session discussions to ensure that the Subcommittee's ongoing activities prioritize the needs of community stakeholders.

2. Lunch Keynote: Mr. Jamie Johnson

During the workshop's lunch keynote address, Mr. Jamie Johnson, Deputy Director of Research and Development Partnerships in the S&T Directorate at DHS, provided an overview of the three major challenges facing NSL partnerships. Mr. Johnson detailed the necessary steps to successfully navigate changing research and development (R&D) budgets at the Federal and laboratory management level. He recommended avoiding dependence on a single R&D customer and utilizing technology transfer metrics and milestones to create an enterprise-oriented mindset in the laboratories. In communicating laboratories' capabilities and priorities, Mr. Johnson recommended creating organizational links between F&I and R&D personnel to foster ongoing engagement and collaboration. He also emphasized the need to strategically place new laboratories in innovation ecosystems and utilize local industries to stimulate economic development and maximize laboratories' economic impacts.¹ In dealing with aging infrastructure, Mr. Johnson recommended factoring in changing technologies in planning and budgeting, developing long-term NSL infrastructure plans matched to the budget process, and leveraging State and local authorities to offset appropriations constraints.

B. Panel Summaries

1. Panel 1: Developing Innovation Ecosystems and Partnerships

The Panel 1 speakers were Mr. Lester McFawn from WBI, Ms. Mejghan Haider from NASA Research Park, and Mr. Thomas Mulkern from the ARL Open Campus initiative.

- Mr. McFawn discussed WBI's activities that support AFRL through partnership intermediate agreements (PIAs). WBI assists four technology directorates at Wright-Patterson Air Force Base outside Dayton, Ohio in accelerating technology commercialization and partnership formation. Colocation of WBI rapid prototyping and collaboration facilities near AFRL research facilities provides unique opportunities for government, academia, and industry to collaborate. A new facility in downtown Dayton is piloting a novel collaboration space to build strong ties to the local start-up ecosystem.

¹ Innovation ecosystems are comprised of active engagement among Federal and State Government, industry, and academia to provide the resources and expertise needed for technology development and innovation. These ecosystems are often geographically clustered.

- Ms. Haider presented an overview of NASA Research Park in Moffett Field, California and the authorities utilized to promote collaboration and partnership. NASA has used Space Act agreements to partner with academia and industry since the 1970s.² NASA has used its enhanced-use lease (EUL) authority, granted in 2003, to bring partners on-site in R&D areas including alternative energy, massively distributed computing, and bio-info-nano convergence. Start-ups nurtured through EUL agreements at NASA Research Park often move on to expand their operations in nearby Silicon Valley. NASA has also worked with the General Services Administration (GSA) to leverage leasing authority from the National Historic Preservation Act to competitively award a long-term lease to Google and further NASA's mission and reduce facility maintenance costs.³
- Mr. Mulkern provided updates on the ARL Open Campus initiative, which fosters collaboration with academia, industry, and small businesses to jointly tackle Army technology challenges. The Open Campus initiative is expanding its connection with local innovation ecosystems, with new regional laboratories under development in Chicago, Illinois and Boston, Massachusetts which tap into local research expertise and nurture local start-ups. ARL continues to utilize a Master Cooperative Research and Development Agreements (CRADA), which allows ARL to reduce the procedural barriers for collaboration and permit multiple ARL researchers to collaborate with researchers in partner organizations. During the question & answer session, Mr. Mulkern noted the benefits of leveraging PIAs to assist in identifying and engaging partners in new ways.

2. Panel 2: Leveraging Partnerships to Enhance RDT&E Mission and Capabilities

The Panel 2 speakers were Dr. Jill Harper from the National Institutes of Health-National Institute of Allergy and Infectious Diseases (NIH-NIAID) Office of Biodefense and Surety, Dr. John Fischer from the Homeland Security-HSARPA Chemical and Biological Defense Division, and Dr. D. Christian Hassell from the DoD Office of the Assistant Secretary of Defense, Chemical and Biological Defense.

- Dr. Harper provided an overview of the various partnerships used to fulfill NIAID's missions to sustain a robust research portfolio and rapidly respond to emerging and re-emerging disease threats. NIAID maintains a network of extramural national and regional biocontainment laboratories constructed through partnerships with local universities, in addition to numerous intramural facilities. NIAID is one of nine signatories from four different Federal departments to NICBR. NICBR enables Federal partners to collocate mission-specific facilities

² 42 U.S.C. § 2451 et seq.

³ National Historic Preservation Act, Public Law 102-575, 54 U.S.C. § 306121 and § 306122.

with unique capabilities at the National Interagency Biodefense Campus and derive efficiency through sharing common infrastructure, security, and utilities.

- Dr. Fischer discussed numerous obstacles to forming and sustaining interagency partnerships for NSL F&I. He discussed the impacts of budgetary constraints and changes in departmental partnering strategies on chemical and biological security facilities that provide unique capabilities to homeland security. Dr. Fischer further highlighted how these financial and organizational changes impact the interdependence of homeland security priorities with DOE National Laboratory capabilities.
- Dr. Hassell presented an overview of the DoD Chemical and Biological Defense Program (CBDP). CBDP operates numerous facilities, including the U.S. Army Medical Research Institute of Infectious Diseases and Edgewood Chemical and Biological Center, with unique RDT&E capabilities for the DoD and numerous other agencies. Speaking from his background developing technologies for DHS, Dr. Hassell noted the need to move beyond capabilities to understand shared facilities' capacity to quickly test and evaluate new technologies to speed development and deployment. Concerning international partnerships, Dr. Hassell emphasized the importance of investing in personnel, such as placing DoD researchers with partners abroad to derive both tangible research outcomes and intangible benefits.

3. Panel 3: Technology Transfer and Development

The Panel 3 speakers were Mr. John Dement from the NSWC, Crane Division and the Federal Laboratory Consortium for Technology Transfer, Ms. Mojdeh Bahar from the USDA Agricultural Research Service, and Mr. Vincent Luciani from the National Institute of Standards and Technology (NIST) NanoFab.

- Mr. Dement provided an overview of the Federal Laboratory Consortium (FLC), a congressionally mandated organization driven to promote, educate, and facilitate Federal technology transfer. He highlighted FLC online tools available to the public to accelerate technology development and transfer, including FLC Business and Tech Focus.⁴⁵ Mr. Dement noted the significance of translating economic impact analyses into terms amenable to the public to convey laboratories' importance. He discussed partnership development at NSWC, Crane Division, emphasizing the importance of early engagement with State and local

⁴ Available at <https://flcbusiness.federallabs.org/#/>.

⁵ Available at <https://www.federallabs.org/Technology-Focus>.

authorities and aligning partnerships with industry interests to leverage private financing.

- Ms. Bahar spoke on behalf of the USDA Agricultural Research Service (ARS), which has over 2,000 scientists at 90 locations throughout the United States involved in almost 700 research projects. She emphasized the importance of providing success stories alongside quantitative outputs to effectively communicate technology transfer to the public. She presented a trio of successful technology development and transfer projects at ARS, including CRADAs, Small Business Innovation Research awards, and exclusive patent licensing.
- Mr. Luciani provided a facilities perspective on partnerships and technology development. He discussed the nanofabrication tools and services available at the NIST Center for Nanoscale Science and Technology NanoFab. The NanoFab utilizes user-friendly policies and operations to promote safety, security, and entrepreneurship. He likened the Nanofab to an incubator, providing the infrastructure and expertise to nurture innovation as new technologies move from early-stage development to manufacturing. The Nanofab provides a model for streamlining facilities policies and operations to simplify and accelerate partnering.

4. Panel 4: Accelerating Economic and Local Impacts

The Panel 4 speakers were Ms. Lisa Swoboda from the Maryland Department of Commerce Office of Military Affairs, Ms. Jackie Kerby Moore from the DOE SNL Science & Technology Park, and Dr. Camille Bibeau from the DOE LLNL LVOC initiative.

- Ms. Swoboda spoke on behalf of the Maryland Office of Military Affairs, Maryland State's liaison to the Federal Government's defense community. The Office of Military Affairs promotes Maryland's military facilities, including 12 major installations and 74 Federal laboratories. A recent economic impact analysis estimated \$57.4 billion in economic output and over 400,000 jobs from Maryland's major installations.⁶ Ms. Swoboda's office has partnered with local Army technology transfer offices to form the Defense Technology Commercialization Center (DefTech) to promote entrepreneurial activities at Maryland R&D facilities. DefTech is using several metrics to measure economic impacts, including the number of new licenses by and CRADAs formed with Maryland companies, and improved engagement between researchers and industry.

⁶ Available at <http://commerce.maryland.gov/Documents/ResearchDocument/MarylandMilitaryInstallationEconomicImpactStudy2015.pdf>.

- Ms. Kerby Moore provided an overview of economic development activities at SNL. The Sandia Science & Technology Park is a public-private partnership formed in 1998 through a memorandum of understanding between SNL, local landowners, and numerous private partners. The Science & Technology Park is a model for initial public funding spurring larger private investment. She discussed the Center for Collaboration and Commercialization, a new public face for SNL that provides programs and services to facilitate partner interaction and technology commercialization. Ms. Kerby Moore also discussed the economic impact metrics and outcomes used in other SNL economic development programs, including the New Mexico Small Business Assistance program, small business vouchers, and entrepreneurial separation.
- Dr. Bibeau provided an overview of LLNL's LVOC initiative, which has over 250,000 square feet of laboratory, office, and collaboration space. The collaboration space has enabled LVOC to host numerous educational and cultural events, in addition to providing unique research infrastructure for partnerships in numerous areas including cybersecurity, high-performance computing, and alternative energy. Dr. Bibeau highlighted LLNL's efforts to promote continuous engagement between LLNL entrepreneurs and younger scientists through mentorship opportunities. To further encourage these interactions and build ties with the local community, LLNL, SNL, and the city of Livermore have partnered to provide a downtown incubator, Switch Labs, to facilitate entrepreneurship, innovation, and mentorship.

3. Roundtable Discussions

The workshop included facilitator-led roundtable discussions in which participants identified and discussed challenges to interagency and multi-party partnering for RDT&E F&I. In these discussions, participants shared best practices and proposed potential solutions to these challenges that could benefit the NSL F&I community. Panel moderators facilitated the groups' discussion and STPI support staff recorded discussion outcomes.

To aid discussions, STPI developed and distributed broad discussion themes and questions to seed conversation based on the challenges and recommendations identified at the 2016 Federal Facility Workshop (see Appendix C). Participants were encouraged to use the discussion topics to prioritize focus areas.



Photo credit: Michelle Hindman

Figure 1. Workshop Participants Discussing Common Obstacles

In collaboration with the Partnerships Working Group leadership, STPI collected discussion notes and derived seven major challenges with multiple corresponding recommendations. The challenges and recommendations reflect the three roundtable groups' discussions of common NSL F&I challenges in interagency and public-private partnerships. The recommendations are comprised of suggested methods to address the challenges discussed throughout the workshop. Specific results do not represent the viewpoint of any one department or agency, and they may or may not be applicable to all participating departments and agencies. The identified challenges and recommendations will help to inform the NSTC Subcommittee and the Partnerships Working Group in identifying priorities to advance NSL F&I partnerships.

1. *Challenge:* Community members discussed a lack of documentation on models and lessons learned when developing and implementing NSL facility partnerships, including identifying partners, structuring rights to intellectual property, establishing facility use agreements, and assessing economic impacts.

Recommendation: The Subcommittee, working with agencies, could develop lessons learned and template documents to facilitate partnership development and disseminate guidance across the NSL community.

- Option: Increase awareness of available resources, including the FLC Technology Transfer (T2) Playbook and T2 Toolkit, and STPI publications, including:
 - Best Practices for Federal Research and Development Facility Partnerships⁷
 - Federal Partnerships for Facilities, Infrastructure, and Large Instrumentation⁸
- Option: Identify additional community needs and produce resources and other materials to augment existent resources

2. *Challenge:* A lack of awareness of agency authorities—in particular funding flexibilities—among relevant parties delays and inhibits partnership formation.

Recommendation: The Subcommittee, working with agencies and the FLC, could distribute accurate and timely information on agency authorities to relevant parties, including General Counsel offices, facility operations managers, and technology transfer offices across headquarters and laboratories.

- Option: Increase awareness of FLC T2 Toolkit authorities' components⁹
- Option: Annually update and disseminate the Subcommittee's authorities matrix (which provides authorities for providing and receiving funds across partners) to reflect legislative changes and new flexibilities

3. *Challenge:* Laboratories may lack capacity to effectively market their capabilities to private industry and effectively promote opportunities for partnerships.

Recommendation: Agencies could enhance outreach activities to promote partnerships between NSLs and private industry, including a focus on clarifying the benefits and successes of working with the Federal Government.

⁷ Available at <https://www.ida.org/idamedia/Corporate/Files/Publications/STPIPubs/2014/ida-p-5148.ashx>.

⁸ Available at <https://www.ida.org/idamedia/Corporate/Files/Publications/STPIPubs/ida-d-4937.ashx>.

⁹ Available at <https://www.federallabs.org/T2-Toolkit>.

- Option: Disseminate the Subcommittee's Communications Strategy, which focuses on providing key messages to public communications experts across the NSL community
- Option: Share effective messages and strategies used across stakeholders to communicate the value of NSL facilities, infrastructure, and partnerships, and the benefits they provide

Recommendation: OSTP, working with NSTC and the Subcommittee, could support analysis and development of a report highlighting effective models and outcomes of public-private and multi-sector NSL partnerships, including engagement with local and State governments.

- Option: Increase awareness of FLC "success stories" that are featured on their website as narratives of impacts from successful partnerships¹⁰

4. *Challenge:* Interagency partnerships are susceptible to inconsistent cost-sharing as agency mission, leadership priorities, and appropriations change.

Recommendation: Agencies could share mechanisms to set clear terms of agreement that govern interagency partnerships and ensure reliable cost-sharing. Models could include developing structured, formal agreements and working with Congress and the Office of Management and Budget (OMB) to establish a working capital or a set-aside fund for the operation of multi-agency NSL facility partnerships.

5. *Challenge:* Community members note a desire to better link facilities to RDT&E capabilities through standardized data frameworks to enable partnership formation.

Recommendation: OSTP, working with the Subcommittee, could encourage agencies to convene appropriate stakeholders to develop a standardized capabilities framework and coordinate mechanisms to share data that helps agencies identify opportunities for interagency partnering and maximize utilization of their NSL facilities.

6. *Challenge:* Community members note the lack of a centralized communications space for sharing information about the NSL community and the Subcommittee's activities leads to less efficient knowledge sharing.

Recommendation: OSTP could work with GSA, or other organizations with existent repositories, to develop a central repository (e.g., website or database) for information concerning NSLs, including available facilities and capabilities, partnership template documents, and available authorities.

¹⁰ Available at <https://www.federallabs.org/Success-Stories>

- Option: Increase awareness of FLC Business 2.0 for identifying (unclassified) NSLs, their RDT&E capabilities, and coordinate community feedback for augmenting the tool¹¹
 - Option: Launch a repository of available (unclassified) NSL properties and capabilities to encourage interagency partnerships specifically for NSLs
7. Challenge: Community members note a plethora of regulatory barriers to forming partnerships at NSLs, and additional uncertainty over statutory and policy obstacles that require clarity to resolve.

Recommendation: OSTP, working with the Subcommittee, could recommend that agencies convene appropriate stakeholders to brainstorm legislative and regulatory barriers hindering the (1) effective management of NSL facilities and (2) formation of interagency and private-public partnerships. OSTP could help identify the benefits and obstacles of possible policy or other solutions, including forming and operating working capital funds for operations and maintenance needs, and expanding or maximizing the use of Federal flexibilities for real property transactions, such as out-leasing, gifts, exchanges, and cost recovery for shared facilities.

¹¹ Available at <https://flcbusiness.federallabs.org/#/>.

4. Next Steps

The Partnerships Working Group plans to address the outputs produced from the 2017 Federal Facility Workshop in future meetings. Challenges and recommendations highlighted by the workshop will be considered in the development of the Partnerships Working Group's priorities and activities for 2018 and beyond.

The Partnerships Working Group will continue to identify and develop opportunities that support the formation of national security F&I partnerships. Its activities will focus on: (1) collecting and sharing best practices for national security F&I partnerships based on lessons learned from past experiences across the Federal Government; (2) improving planning, coordination, and communication to identify common mission capabilities and needs, which can serve as the basis for national security F&I partnerships; and (3) developing common methodologies and/or shared funding mechanisms to form partnerships within the Federal Government, or between the Federal Government and non-Federal entities. These activities will continue throughout 2018, as directed by the NSTC.

In closing remarks, the Partnerships Working Group co-chair, Mr. Ben Dichoso, reiterated the Subcommittee's recent accomplishments, including new materials that raise awareness of the Subcommittee's priorities and activities to the NSL community and forthcoming workshop outputs. Mr. Dichoso offered all Federal Government participants the option to attend future Working Group meetings and to remain engaged in the development of priorities for RDT&E F&I partnerships.

Appendix A.

List of Participants and Workshop Agenda

Workshop participants included more than 70 representatives from 23 Federal departments, agencies, sub-agencies, and laboratories, and a number of non-Federal organizations. A list of the names of all participants by their affiliated organization follows.

Brookhaven National Laboratory

Martin Fallier

Department of Agriculture

Mojdeh Bahar

Elizabeth Lautner

Sandra Martin Sadler

Department of Defense

D. Christian Hassell

Lauren Hickok

Robert Lange

Jagadeesh Pamulapati

Department of Defense

U.S. Army

Mark Dertzbaugh

Shawn Kidwell

Thomas Mulkern

Lon Pribble

Heather Robbie

Randy Weishaar

Matt Willis

Department of Defense

U.S. Air Force

Keith Quinn

Augustine Vu

Department of Defense

U.S. Marine Corps

Terri Peasley

Department of Defense

U.S. Navy

John Dement

John Rein

Michael Schroeder

Rick Tarr

Joseph Teter

Department of Energy

Rochelle Blaustein

Eric Haukdal

Joseph McBrearty

Sharlene Weatherwax

John Yates

Department of Health and Human Services

Food and Drug Administration

Jeff Degrasse

Robert Fisher

George Korch

Tracy MacGill

Department of Health and Human Services

National Institutes of Health

Jill Harper

Department of Homeland Security

Lesley Blancas

John Fischer

Genevieve Humphreys-Uebel

Jamie Johnson

Bradley Schreiber

Andrew Scott

Paul Strang

Department of the Interior

U.S. Geological Survey

Daniel Hayba
Guelaguetza Vazquez-Meves

Department of Transportation

Jennifer Nicks
James Short

Department of Veterans Affairs

F. Alex Chiu

Environmental Protection Agency

Tonya Nichols
Sanjiv Shah

Lawrence Livermore National Laboratory

Camille Bibeau

Maryland Department of Commerce

Lisa Swoboda

National Aeronautics and Space Administration

Mejghan Haider
George Madzsar
Kristy Thompson

National Institute for Standards and Technology

Hrayr Azizbekyan
Vincent Luciani
Chuck Na
Paul Zielinski

National Nuclear Security Administration

Jose Christian
Incheol Pang

National Science Foundation

Michael Gibbons
Matthew Hawkins
John Jankowski
Elise Lipkowitz
Christopher Pece

Office of the Director of National Intelligence

Ben Dichoso

Office of Science and Technology Policy

Chloe Kontos
Michael Kratsios
Lloyd Whitman
Kenneth Wright

Sandia National Laboratory

Jackie Kerby Moore

Wright Brothers Institute

Lester McFawn

IDA Science and Technology Policy Institute

Daniel Bernstein
Laurie Dacus
G. James Herrera
Michelle Hindman
Vanessa Pena
Chelsea Stokes

The workshop agenda reproduced below and on the next page was provided to participants of the 2017 Federal Facility Workshop.



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2017 Federal Facility Workshop

*Advancing America's Economy: Building Infrastructure Partnerships
at National Security Laboratories*

SPONSORED BY THE NSTC SUBCOMMITTEE ON NATIONAL SECURITY LABORATORY
RESEARCH, DEVELOPMENT, TEST AND EVALUATION FACILITIES AND
INFRASTRUCTURE
PARTNERSHIPS WORKING GROUP
AND
THE NATIONAL ACADEMIES OF SCIENCES, ENGINEERING, AND MEDICINE
FEDERAL FACILITIES COUNCIL

8:00 AM to 5:00 PM, Tuesday, October 24, 2017

National Academy of Sciences (NAS) Main Building, Lecture Room

2101 Constitution Ave NW, Washington, DC 20418

Workshop Schedule

- 7:30 **Check-In**, 2101 Constitution Ave NW. Upon arrival, collect your nametag and meeting packet, then proceed to seating.
- 8:00 **Welcome Remarks and Stage Setting**, Ben Dichoso, ODNI
- 8:10 **OSTP Welcome**, Michael Kratsios, OSTP
NAS-FFC Welcome, John Yates, NAS-FFC
- 8:20 **Morning Keynote**, Jagadeesh Pamulapati, Defense Laboratories Office, Assistant Secretary of Defense for Research and Engineering, DOD

PANEL PRESENTATIONS

Format: Introductions; Panel Presentations ~45 mins; Panel Q&A: ~15 mins

- 8:40 **PANEL 1: Developing Innovation Ecosystems and Partnerships**
Lester McFawn, Wright Brothers Institute
Mejghan Haider, NASA Research Park, NASA Ames Research Center
Thomas Mulkern, Army Research Laboratory Open Campus
Moderator: Ben Dichoso, ODNI
- 9:40 **BREAK**



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2017 Federal Facility Workshop

*Advancing America's Economy: Building Infrastructure Partnerships
at National Security Laboratories*

- 9:45 PANEL 2: Leveraging Partnerships to Enhance RDT&E Mission and Capabilities**
Jill Harper, Office of Biodefense and Surety, National Institutes of Health- National
Institute of Allergy and Infectious Diseases (NIH-NIAID), DHHS
John Fischer, Chemical and Biological Defense Division, Homeland Security-ARPA
D. Christian Hassell, Office of the Assistant Secretary of Defense, Chemical and
Biological Defense, DOD
Moderator: Robert Fisher, Office of the Assistant Secretary for Preparedness and
Response, DHHS
- 10:50 PANEL 3: Technology Transfer and Development**
John Dement, Naval Surface Warfare Center, Crane Division, DOD, and Federal
Laboratory Consortium for Technology Transfer
Mojdeh Bahar, Agricultural Research Service, USDA
Vincent Luciani, NanoFab, NIST
Moderator: Paul Zielinski, NIST
- 11:50 Lunch - Lunch is on your own at the NAS Café in the basement (see map)**
- 12:30 Lunch Keynote Speaker, Jamie Johnson, Deputy Director, Research & Development
Partnerships, S&T Directorate, DHS**
- 1:00 PANEL 4: Accelerating Economic and Local Impacts**
Lisa Swoboda, Office of Military Affairs, Maryland Department of Commerce
Jackie Kerby Moore, Sandia National Laboratories, DOE
Camille Bibeau, Lawrence Livermore National Laboratory, DOE
Moderator: Jeff Degrasse, FDA
- 2:00 Breakout Discussion Instructions, Jeff Degrasse, FDA**
- 2:05 BREAK**
- 2:20 Breakout Discussions, To discuss RDT&E F&I policy suggestions and actions**
Meet in Assigned Breakout Rooms (check your name badge for assignment)
- 4:40 Report Outs from Discussions (Convene back in the Lecture Room)**
- 5:00 Concluding Remarks and Next Steps, Ben Dichoso, ODNI**

Appendix B.

Speaker and Panelist Bios

WELCOME



Mr. Ben Dichoso

Chief of IC Facilities, Environmental, and Energy Management Acquisition, Technology, and Facilities (AT&F), ODNI

Mr. Ben Dichoso, P.E., REM became a Senior Facilities and Logistics Program Manager for Acquisition, Technology and Facilities in May 2016 and is the Chief of Intelligence Community (IC) Facilities, Environmental and Energy Management.

Prior to this assignment, he served as the Chief of Department of Defense Embassy and Consulate Services and the Director of Facilities for the Office of the Director of National Intelligence (ODNI). Mr. Dichoso joined the ODNI in October 2007.

Beginning in 2014, Mr. Dichoso was assigned to the Office of Department of Defense Embassy and Consulate Services (DECS). In this capacity, he represented worldwide equities for administrative services and diplomatic construction. Prior to DECS, Mr. Dichoso served as Deputy Chief of Facilities Engineering for the Defense Intelligence Agency (DIA). Previously, he had been a civil engineer in the United States Air Force (USAF). He served in a variety of positions including the Chief of Base Development for USAF 11th Wing and Chief of Construction for the USAF 35th Air Base Wing. In 2004, he joined the USAF Pentagon staff, serving as the subject matter expert to the Air Force Civil Engineer Two-Star General (O-8) on all recapitalization and sustainment issues.

Mr. Dichoso made the civil service transition with the Air Force in 2001 as an entry-level program analyst. He was responsible for base development and upgrades to Anti-Terrorism/Force Protection infrastructure after the 9/11 attacks on the Pentagon. In 2003, Mr. Dichoso moved into program management at the Headquarters Air National Guard (HQ ANG). He was a senior manager for maintenance, repair, and construction programs, leading the facility planning, programming, analysis, and oversight of ANG installations and geographically separated sites.

Mr. Dichoso began his military career in 1988 as an Air Force Reserve Officer Training Corps scholar. He was commissioned as a USAF Civil Engineer Officer where he played a major role in the reconstruction for a \$22 million storm recovery after 200+ mph Super Typhoon Paka struck Guam, and led a crash survey team to handle the devastating Korean Air Flight 801 incident in support of the National Traffic Safety Board (NTSB).

Mr. Dichoso attended Virginia Polytechnic Institute and State University (VA Tech) and was awarded a Bachelor of Science Degree in Civil Engineering. He also received his Master of Science in Environmental Engineering from VA Tech in 1998. He is a Professional Engineer (P.E.) registered in Virginia and a Registered Environmental Manager (REM). Additionally, Mr. Dichoso resides in Alexandria, Virginia with his wife Jennypher, his son Benedict, and three daughters, Victoria, Katharine, and Elizabeth.



Mr. John Yates

Federal Facilities Council

Senior subject matter expert on facilities and infrastructure (F&I) planning and management including campus infrastructure plans, facilities databases, F&I performance management and trending and contractor performance assessment. Represents SC on the DOE Facilities and Infrastructure Steering Committee and the DOE Infrastructure Executive Committee. Represents SC in the development of updated DOE Real Property Asset Management Order. Responsible for the Infrastructure Section of Annual

Laboratory Plans and the F&I portion of annual laboratory performance plans.

Manages the Office of Science (SC) Science Laboratories Infrastructure (SLI) General Plant Projects Program which funds general purpose projects of \$10M or less.

Serves as SC Hqs Sustainability Program Manager overseeing the SC sustainability activities in meeting goals of Executive Order 13693. This includes coordinating the Site Sustainability Plans for the 13 SC laboratories and sites including Argonne, Brookhaven, Oak Ridge, Lawrence Berkeley, Pacific Northwest, SLAC, Fermi, Princeton Plasma Physics Lab and Thomas Jefferson Lab. The Plans include progress and plans for reducing energy and water usage, fleet management, green acquisitions, Energy Savings Performance Contracts, Utility Energy Saving Contracts, climate change and clean and renewable energy. Represents SC on DOE Sustainability Working Group.

Has served as Office Director for SC's F&I Division, overall program manager for SC's SLI Program and project director for line item construction projects.

Mr. Yates holds a BS in Physics from the University of Maryland and an MS in Operations Research from George Washington University where he took graduate courses in Construction, Finance, and Contracting & Law.



Mr. Michael Kratsios

Deputy Assistant to the President and Deputy U.S. Chief Technology Officer, White House Office of Science and Technology Policy

Michael Kratsios is a Deputy Assistant to the President and the Deputy U.S. Chief Technology Officer at the White House. Michael

advises the President on a broad range of technology policy issues and helps drive U.S. technology priorities and strategic initiatives.

Under his leadership, the White House Office of Science and Technology Policy encourages the development of emerging technologies in the United States, empowers American companies to commercialize and adopt new technologies, and improves and expands access to the tools necessary for Americans to succeed in the 21st century economy. His office is also responsible for aligning the development of new technologies with the administration's priorities, including standing up for the American worker, defending American innovations abroad, and protecting the safety and security of the American people.

Prior to joining the White House, Michael was a Principal at Thiel Capital, where he invested in and advised technology companies. Michael graduated from Princeton University and served as a Visiting Scholar at Beijing's Tsinghua University.

MORNING KEYNOTE



Dr. Jagadeesh Pamulapati

Director, Laboratories Office, Office of the Assistant Secretary of Defense for Research and Engineering, DoD

Dr. Jagadeesh Pamulapati is the Director, Laboratories Office in the Office of the Assistant Secretary of Defense (Research and Engineering) (ASD(R&E)). Dr. Pamulapati is responsible for all matters associated with Department of Defense (DoD) laboratories that encompass a Defense Laboratory Enterprise and the approximately 39,000 scientists and engineers that work in the 63 defense laboratories, warfare centers, and engineering centers across 22 states and the District of Columbia. In addition to laboratory matters, Dr. Pamulapati also leads the Science, Technology, Engineering, and Mathematics (STEM) Development Office within the DoD; ensures interchange with Allied friendly nations, and provides advice and assistance in developing policies for rapid technology transition.

Dr. Pamulapati was selected for the Senior Executive Service in January 2016. Prior to this, Dr. Pamulapati was in the Office of the Assistant Secretary of the Army for Acquisition, Logistics and Technology (ASA(ALT)) from June 2006. In this position, he was responsible for developing and implementing policy initiatives for the Army's laboratories. He also fulfilled the role of the Executive Director for Strategic Plans and Program Planning, a Senior Executive Service position, where he was responsible for the Basic Research, Innovation Enablers, Manufacturing Technologies, Technology Wargaming, and International Portfolios.

During his time with the Army, Dr. Pamulapati also served as a senior policy analyst within the White House Office of Science and Technology Policy, responsible for a broad portfolio of national security interest items; the Chief Scientist and Chief Technical Officer responsible for technology integration for the Army's Future Combat Systems (FCS) program, the Army's leading transformational initiative consisting of soldiers, manned and unmanned systems within a unifying

network; and a scientific liaison to the Army Office of the Deputy Chief of Staff, G-8 where he provided technical expertise on science and technology issues.

Dr. Pamulapati began his distinguished career at the Army Research Laboratory (ARL) where he developed advanced ultra-submicron high-speed devices for next generation optoelectronic integrated circuits and monolithic millimeter wave integrated circuits, infrared materials for forward-looking infrared imagers, as well as high power infrared laser sources for countermeasure applications.

Dr. Pamulapati received his B.S.E., M.S.E. and Ph.D. in Electrical Engineering from The University of Michigan, Ann Arbor. He holds eleven patents and has contributed to more than 40 archival journal publications and three books. On numerous occasions, he has been invited to lecture at national and international fora for industry and academia. Besides the Army War College in Carlisle, PA, he has been a visiting lecturer at the University of Maryland, College Park, and Rutgers, The State University of New Jersey, Piscataway.

Dr. Pamulapati has a myriad of talents and interests outside of science and technology. Besides being a single digit handicap golfer, he is also a pastry arts and design chef holding a degree in Pastry Arts from L'Academie de Cuisine, Gaithersburg, MD.

LUNCH KEYNOTE



Mr. Jamie Johnson

Deputy Director, Research & Development Partnerships, and Executive Director, National Bio and Agro-Defense Facility, Program Executive Office, Science & Technology Directorate, DHS

Over the last 25 years, James “Jamie” Johnson has led and managed large Federal organizations and multi-billion dollar national nuclear security and acquisition programs for two different Federal agencies (DOE and DHS).

Mr. Johnson currently serves as the Executive Director of the Program Executive Office of one of the largest and most complex DHS security programs which provide America’s next generation capabilities that safeguard our agricultural economy, food supply, and public health from the threat of foreign animal and zoonotic diseases. Mr. Johnson stood up and now oversees the \$1.3 billion National Bio and Agro-Defense Facility (NBAF). He is presently overseeing acquisition planning, security, construction, operational stand-up, and partnership development with industry, academia, and state and local governments.

Mr. Johnson also serves as the Deputy Director for the DHS Research & Development Partnerships group (which includes NBAF), and leads the organization of 500 people in their mission to develop, foster, and leverage enduring partnerships across government and with industry, academia, and national labs. Mr. Johnson serves as the senior official in establishing partnerships with DOE National Laboratories to leverage capabilities to support DHS mission needs.

Mr. Johnson began his career in the private sector with Westinghouse at the DOE Savannah River Site in 1985, working as a nuclear engineer. In this role he managed a variety of field assignments

in operations, nuclear materials production, and nuclear safety. In 1991, Mr. Johnson joined DOE in Washington, DC and worked in various programs in nuclear security, nuclear materials management, and environmental management. In 1997, he joined DOE's National Nuclear Security Administration and Nuclear nonproliferation group in the plutonium disposition program to help safeguard and secure nuclear materials.

In 2005, Mr. Johnson joined the DHS Science & Technology Directorate and was appointed the director of the Office of National Laboratories, where he led the operations of the DHS S&T laboratories (\$250 million annual enterprise; 500 people). Mr. Johnson directed the multi-agency planning, design, and construction (\$150 million project) of DHS's first R&D laboratory facility, the National Biodefense Analysis and Countermeasures Center. Mr. Johnson established the first FFRDC (Federally Funded Research and Development Center) within DHS.

Mr. Johnson earned his B.S. and M.S. degrees in nuclear engineering from the University of Arizona and the Georgia Institute of Technology, respectively. He earned his M.B.A. from the University of North Carolina. He was appointed to the career Senior Executive Service in 2011.

PANEL 1 SPEAKERS



Mr. Lester McFawn

Executive Director, Wright Brothers Institute

Lester McFawn is Executive Director, Wright Brothers Institute, Dayton, Ohio. The Wright Brothers Institute (WBI) is a leader in applying advanced innovation tools, processes, environments and multidisciplinary collaborations to solve challenging problems. Previously, he was a member of the Federal Government's Senior Executive Service, serving in key Air Force leadership positions in aerospace research, development and acquisition.

From 2003 to 2008 he was Executive Director, Air Force Research Laboratory. In this position he led the Air Force's \$3.7B science and technology program; 10 R&D business units; and a workforce of 9,900 of the world's top scientists, engineers and support staff. He previously held senior executive positions with responsibility for policy, strategic planning, manpower, organizational planning, and out year budget development for the Air Force Air Armament Center and the Air Force Materiel Command. As Director, Sensors Directorate, Air Force Research Laboratory, he had responsibility for the Air Force's total science and technology program in sensors and electronics.

Mr. McFawn holds a Masters Degree in computer, information and control engineering from the University of Michigan, and a Masters Degree in electronics engineering from Florida State University. He has received numerous awards including the Outstanding Civilian Career Service Award, Presidential Rank Award for Meritorious Executive, Defense Acquisition Executive Certificate of Achievement, and 2010 Non Profit Business of the Year in the Greater Dayton Region. He currently serves on the boards of TechSolve, Ohio Aerospace Institute and Dayton Defense Educational Foundation.



Ms. Mejghan Haider

Deputy Director, NASA Research Park, NASA Ames Research Center

Mejghan K. Haider is the Deputy Director of the NASA Research Park at NASA's Ames Research Center, Moffett Field, California. The NASA Research Park (NRP), an integrated, dynamic research and education community located in the heart of Silicon Valley, cultivates diverse partnerships with academia, industry and non-profit organizations in support of NASA's missions. As the Deputy Director of NRP, she manages and cultivates partnership development, land use planning, leasing, and property management.

Haider has worked at Ames since 1988. Between 1988 and 1998, she worked in the Chief Financial Officer's organization as a Budget Analyst and Resources Executive. In 1998, she joined the NASA Research Park (NRP) Office where she was involved in early planning of the Park including the Environmental Impact Study, land use and business planning of the NRP. Between 2001 and 2002, she led the lease negotiation with Carnegie Mellon University to establish a west coast campus in the NRP. In 2003 she was instrumental in developing leasing, business policies and practices for the Park. In 2004 she was named as the Chief of Business Development for the NRP. In this capacity, she managed a core staff, led an integrated product team consisting of various disciplines including real estate and planning consultants. In 2009, she took on additional responsibilities as the Acting Deputy Director of the NRP and in 2013 was named as the Deputy Director. In 2007, she led the lease negotiation with Planetary Ventures "Google" to build a 1.2M sq. ft. R&D campus as well successful negotiation of a long term lease with Planetary Ventures to rehabilitate historic hangars at Moffett Field.

Awards:

- U.S. General Services Administration national award for Real Property Innovation (for NASA Research Park) (2003)
- Exceptional Achievement Medal for NASA's objectives for the NASA Research Park (2004)
- Group Achievement Award for Carnegie Mellon University Lease (2004)
- Group Achievement Award for Space Technology Center Development (2004)
- Silicon Valley Business Journal Structures Award "Deal of the Year for Google High Technology Campus" (2008)
- Exceptional Achievement Medal for leading the lease negotiation with Planetary Ventures "Google" (2009)
- Northern California Real Estate Women of Influence Award (2011)
- Group Achievement Award for leading NASA Research Park Integrated Product Team (2013)
- Outstanding Leadership Medal for developing concepts and direction for the NASA Research Park on behalf of the Agency (2016)



Mr. Thomas Mulkern

Director of the Technology Transfer and Outreach Office, Army Research Laboratory Open Campus

Mr. Mulkern is the Chief of the Technology Transfer and Outreach Office at ARL. He is responsible for directing Technology Transfer Programs that include: Small Business Innovation Research (SBIR), Cooperative Research and Development Agreements (CRADA), Patent License Agreements (PLA), Test Service Agreements (TSA) and International Cooperative Research, Development, and Acquisition (ICRDA) programs that support the ARL technology portfolio. Outreach responsibilities include support of the Army Education Outreach Program (AEOP), K-12 Science Technology Engineering and Math (STEM) outreach, and Historically Black Colleges and Universities / Minority Institution (HBCU / MI) programs.

Mr. Mulkern was the Chief of Global Technology Integration Division at the US Army Research Development and Engineering Command (RDECOM) HQ from 2010-2013. He provided direction, technical leadership, and oversight on all international Science and Technology (S&T) programs within RDECOM. He facilitated international S&T activities and ensured that foreign technology was considered for use in US Army programs.

Mr. Mulkern was the International Programs Manager at ARL from 2008 to 2010. As the ARL International Programs Manager he developed and implemented the ARL international S&T strategy and plans.

Mr. Mulkern worked for the U.S. Department of Defense in Germany from 2002 to 2007 where he promoted international cooperative research and development programs between U.S. research labs and foreign research institutes.

Mr. Mulkern began his professional career at the US Army Materials Technology Laboratory in Massachusetts. He was subsequently employed as a research engineer at ARL in Maryland where he managed technical programs focused on lightweight polymer matrix composite materials, processing, and applications.

Mr. Mulkern earned a Bachelor's degree in Mechanical Engineering from Northeastern University and a Master's degree in Plastics Engineering from the University of Massachusetts. Mr. Mulkern has published dozens of technical papers on polymer matrix composite research and holds one US patent. He is married and has two children.

PANEL 1 MODERATOR

Mr. Ben Dichoso

Chief of IC Facilities, Environmental & Energy Management, Acquisition Technology and Facilities, ODNI

See Dichoso bio page B-1.

PANEL 2 SPEAKERS



Dr. Jill R. Harper

Director, Office of Biodefense Research and Surety (OBRS), and Associate Director for Science Management, National Institute of Allergy and Infectious Diseases (NIAID), National Institutes of Health (NIH)

As the Director of OBRS, Jill Harper leads the NIH chemical countermeasures research program and coordinates surety functions, including emergency preparedness, physical and personnel security, and biosurety, across the Institute and with the NIH Office of Research Services. Jill also serves as the Associate Director for Science Management at the NIAID, where she helps to lead the NIAID Office of Science Management and Operations (OSMO). The NIAID OSMO provides support for the scientific mission of NIAID in the following areas: technology transfer, surety and emergency preparedness, computational biology and cyberinfrastructure, communications and government relations, scientific planning and evaluation, budget planning and execution, ethics, workforce resources, facilities and space management, and administrative services.

Previously, she served as the Chief of the Legislative Affairs and Correspondence Management Branch, in the NIAID Office of Communications and Government Relations, where she led congressional liaison and legislative analysis activities for NIAID. Prior to joining NIAID in 2002, Jill was an American Society for Microbiology Congressional Science Fellow. As a Fellow starting in September 2001, she spent a year as a legislative assistant in the office of U.S. Representative Rush D. Holt (12th district of New Jersey), where she worked on issues related to science and technology and bioterrorism. Jill earned a B.S. in biology from Oglethorpe University in Atlanta, Georgia, and an M.A. and a Ph.D. in molecular biology from Princeton University.



Dr. John Fischer

Director, Chemical-Biological Defense Division, Homeland Security Advanced Research Projects Agency, Science & Technology Directorate, U. S. Department of Homeland Security

Dr. John Fischer earned a bachelor's degree in Chemistry from Lawrence University in 1978, his doctorate in Organic Chemistry from Northern Illinois University in 1982, and served as a post-doctoral research chemist at the Ohio State University from 1982 to 1984. He began his career with the Navy in 1984 as a research chemist in the Research Department at the Naval Air Warfare Center Weapons Division (NAWCWD), China Lake, California. His interests were in the development of new explosives, propellants, and nonlinear optical materials.

Dr. Fischer assumed the position of branch head in the Soldering Technology Branch in 1990; responsibilities included providing electronics assembly product assurance for the production of Navy missile and weapon systems.

In 1994, he was assigned as the head of the Chemistry and Materials Division at NAWCWD. In this position, he was responsible for the basic and applied research of materials and processes for Navy missile and weapon systems.

In 1996, he assumed the position of Advanced Technology Manager for the Tomahawk Cruise Missile Project Office. Dr. Fischer led initiatives on identification of technology requirements for the Tomahawk missile and R&D programs to address these requirements including transition of mature technology to Tomahawk production and deployment. Concurrent with these duties, Dr. Fischer was leader of the NAWCWD Tomahawk Block IV Integrated Product Team. Following this assignment, he was named Deputy of the Naval Air Systems Command (NAVAIR) Uninhabited Combat Aerial Vehicle Advanced Development Project Office. His responsibilities included development of a new weapon system concept to address future requirements of Naval Aviation.

Dr. Fischer was appointed to the Senior Executive Service in 1998 and served as the Associate Director of NAVAIR's Science and Technology Office and head of the Research Department at NAWCWD, China Lake, California. As head of the Research Department, Dr. Fischer managed a program of research in physics, chemistry, engineering sciences, and computational sciences, Technology Advancement and Technology Transfer Program.

In 2001, Dr. Fischer was appointed as Director of the NAVAIR's Science & Technology Office and was reassigned to the Naval Air Warfare Center Aircraft Division (NAWCAD), Patuxent River, Maryland where his duties included planning and coordination of the Naval Air Systems Command's Science and Technology Program.

In 2004, he assumed the position of civilian director of NAVAIR's Research & Specialty Engineering Department and in December 2006, he was appointed civilian director of NAVAIR's Systems Engineering Department. In this position, he was the lead for Naval Aviation Systems Engineering tasking and functions for the complete life cycle of all aviation and aviation related systems. In January 2008, Dr. Fischer was assigned the additional duty as NAVAIR's Chief Technology Officer.

In March 2009, Dr. Fischer was selected as the Director of Defense Laboratory Programs within the Office of the Assistant Secretary of Defense (Research & Engineering). In this position, he was responsible for the development and implementation of policies for the Department of Defense's (DoD) laboratory system consisting of 62 laboratories in 22 states with an annual budget of \$30B. His responsibilities also included leadership of the DoD's Technology Transfer Program, management of the Science & Technology Manager Acquisition Career Field and policy development for the Department's Science & Technology workforce. In March 2015, he assumed the position of Director, Chemical-Biological Defense Division within the Science & Technology Directorate of the Department of Homeland Security. The Division's mission is to strengthen the nation's security and resiliency by providing knowledge products and innovative technology solutions to enhance National preparedness against both current and future chemical and biological threats. This is accomplished through research and development programs in threat characterization, advanced agent/disease surveillance, agent detection, event attribution and post-event response and restoration support.



Dr. D. Christian Hassell

Deputy Assistant Secretary of Defense for Chemical and Biological Defense, DoD

Dr. David Christian “Chris” Hassell serves as the Deputy Assistant Secretary of Defense for Chemical and Biological Defense. A member of the Senior Executive Service, he is responsible for Chemical and Biological Defense Program oversight throughout the Department of Defense and integration with our interagency and international partners. His primary goal is steering the enterprise in countering current and emerging biological and chemical threats to protect U.S.

Service members and civilians at home and abroad.

Prior to joining the Department of Defense, Dr. Hassell was an Assistant Director of the Federal Bureau of Investigation (FBI), where he served as Director of the FBI Laboratory. During his tenure, he led major efforts to expand the Laboratory’s role in National Security and Intelligence, including the Terrorist Explosive Device Analytical Center (TEDAC) and other technical areas related to Weapons of Mass Destruction. In addition, he strengthened and streamlined FBI programs in traditional forensics, particularly in such rapidly evolving areas as DNA, chemistry, and the use of instrumentation to augment pattern-based forensic techniques (e.g., fingerprints, firearms, and documents). He also led many engagements with international counterparts, with a focus on enhancing counterterrorism interactions with “Five-Eyes” partners, as well as new technical collaborations in Asia, Latin America, and with such key multilateral groups as the International Atomic Energy Agency (IAEA) and INTERPOL.

Dr. Hassell joined the Bureau from the Oklahoma State University Multispectral Laboratories, where he led Research, Development, Testing, and Evaluation. He previously served as Assistant Vice President for Science and Technology at Applied Marine Technologies Incorporated. Prior to that position, Dr. Hassell led programs in analytical chemistry, instrumentation development, and nuclear weapons forensics at Los Alamos National Laboratory. This also included serving as an intelligence analyst with the Department of Energy Field Intelligence Element for a variety of issues related to Chemical, Biological, Nuclear, Radiological, and Explosives (CBRNE) threats. During this time, he also served as a subject matter expert for chemical and biological weapons with the Iraq Survey Group in Baghdad. Earlier in his career, Dr. Hassell was a Senior Research Chemist at DuPont, developing online analytical instrumentation for chemical and bioprocess facilities for both research and manufacturing. This included extensive research and development on fermentation-based processes for manufacturing small molecule commodity chemicals.

Dr. Hassell received his PhD in analytical chemistry from the University of Texas at Austin. He is a Fellow of the Society for Applied Spectroscopy and a member of the American Chemical Society.

PANEL 2 MODERATOR



Dr. Robert Fisher

Office of the Assistant Secretary for Preparedness and Response, DHHS

Robert W. Fisher, Ph.D. is Director, Special Projects within the Immediate Office of the Assistant Secretary for Preparedness and Response (ASPR). His responsibilities include developing and managing strategic partnerships within the Public Health Emergency Medical Countermeasure Enterprise (PHEMCE) and leading the PHEMCE portfolio tracking and coordination initiative to provide decision support tools to US, Australian, Canadian, and UK defense and health partners.

Before joining ASPR, Dr. Fisher was Director of Medical Countermeasure Regulatory Science for FDA's Office of Counterterrorism and Emerging Threats (OCET) and the Medical Countermeasures Initiative (MCMi). He led the FDA MCMi Regulatory Science Program, which required overseeing intra- and extramural research programs, and working with FDA Centers, PHEMCE stakeholders, and other U.S. and international partners on medical countermeasure-related regulatory science issues. Dr. Fisher enjoyed a long career at FDA, having joined FDA's Center for Biologics Research and Review (CBER) as a Staff Fellow in 2006 and serving as a Staff Scientist from 2013-2015. During his tenure at CBRE, he provided expert scientific guidance and leadership for the regulatory review of chemical, biological, radiological, and nuclear (CBRN) medical countermeasures and chaired the review committee for several biologic products including CBRN countermeasures for anthrax and botulism. He maintained an active research interest in several medical countermeasure related fields, including the modeling of complications related to vaccinia live-virus vaccines and investigating methods for improved characterization of botulism and anthrax antitoxin products.

Dr. Fisher received his undergraduate degree in Biology from the University of North Carolina at Pembroke and a Ph.D. in Toxicology from the University of North Carolina at Chapel Hill. He studied filovirus and poxvirus pathogenesis under a National Research Council Research Associateship at the United States Army Medical Research Institute of Infectious Diseases and holds a certificate in Biohazardous Threat Agents and Emerging Infectious Diseases from Georgetown University.

PANEL 3 SPEAKERS



Mr. John Dement

Chairman, Federal Laboratory Consortium for Technology Transfer and Naval Surface Warfare Center, Crane Division, DoD

John Dement is the Chairman of the Federal Laboratory Consortium for Technology Transfer (FLC) and has been a Navy civil servant since 1990. From 2007 to 2014, he was Crane Division, Naval Surface Warfare Center's (NSWC Crane) Technology Transfer (T2) director where he negotiated over 140 licenses and collaborative partnership agreements. He then was formally loaned to the State of Indiana under the Intergovernmental Personnel Act (IPA) in 2015 and 2016 to help establish a statewide technology transfer (T2) and commercialization model and capability leveraging of federally funded innovations and assets. Today he continues in advancing his lab's engagement in the innovation ecosystem inside and outside of NSWC Crane. His career at NSWC Crane includes the following assignments: Systems Engineer in the Program Office, Washington, D.C.; Science Advisor to the Pacific Fleet's Maintenance Officer in Pearl Harbor, Hawaii; and managing the SBIR and other technology-oriented alternative funding programs. Prior to the Navy, he worked as a structural engineer on the F-15E for McDonnell Douglas. Mr. Dement has a B.S. in Civil Engineering from the University of Evansville and a Masters of Public Affairs from Indiana University.



Ms. Mojdeh Bahar

Assistant Administrator for Technology Transfer, Agricultural Research Service, USDA

Mojdeh Bahar serves as the Assistant Administrator for Technology Transfer at the Agricultural Research Service (ARS), United States Department of Agriculture (USDA). She has broad responsibility for managing the intellectual property that evolves from the research program of the agency and serves as a resource for management of intellectual property and technology transfer across the USDA. She leads ARS's interactions with government agencies, industries, commodity groups and universities on matters dealing with intellectual property and technology transfer. Ms. Bahar comes to ARS from NIH, where she served as the Chief of the Cancer Branch at the Office of Technology Transfer. There she led a team responsible for marketing, patenting and licensing NIH and FDA inventions in the areas of cancer, gene therapy, and biological response modifiers. Prior to that, Ms. Bahar was an Examiner with the United States Patent and Trademark Office (USPTO). During her tenure at the NIH, she first served as the Regional Coordinator for the Mid-Atlantic Region of the Federal Laboratory Consortium for Technology Transfer (FLC) from 2008 to 2011 and then as the National Chair from 2011 to 2013. A patent attorney registered to practice before the USPTO, the State of Maryland, the United States District Court for the District of Maryland, and the United States Court of Appeals for Federal Circuit, Ms. Bahar is also a Certified Licensing Professional (CLP).

Ms. Bahar has spoken nationally and internationally on a wide spectrum of topics ranging from restriction practice, double patenting, and claim drafting to technology transfer and commercialization, business development, and licensing. She is the recipient of an NIH Director's Award, a Mentorship Award, seven Merit Awards, an FLC S.T.E.M Award, three Excellence in Technology Transfer Awards, a State and Local economic Development Award and a FAES NIH Team Teaching Award. She was the 2014 recipient of Volunteer of the Year Award by Maryland Economic Development Association. In 2015, she was named one of Top 100 Women in Maryland by The Daily Record; received an Abraham Lincoln Honor Award and a Presidential Volunteer Service Award. She is a graduate of the University of Maryland School of Law. She also received a Master of Arts degree from New York University and a Bachelor of Science degree with Honors in Chemistry and French from Dickinson College.



Mr. Vincent Luciani

NanoFab Manager, NIST

Vincent Luciani is the NanoFab Manager. He joined CNST in November of 2008 with over 30 years of private industry experience in semiconductor and nanotechnology process development and project management. Vincent began his career at Solarex Corp. producing photovoltaic solar cells. He then joined the Bendix Advanced Technology Center, developing electronic and nanotechnology devices and processes in a variety of semiconductor material systems, including silicon, gallium arsenide, indium phosphide and lithium niobate. When Bendix became part of Allied-Signal, Vincent went on to lead their advanced process development team, and was awarded an Allied-Signal Premier Achievement Award for excellence in Engineering. Prior to joining NIST, he led the process and product engineering teams at Covega Corporation, developing and ramping up the production of novel indium phosphide photonic devices. Vincent is an expert in Project Management, with a Six Sigma Blackbelt, and holds five patents in semiconductor and nanofabrication technology. Over the last eight years, the CNST NanoFab has installed over \$50M of equipment and quadrupled its user base with users from NIST, academia, industry, and several other government agencies.

PANEL 3 MODERATOR



Mr. Paul Zielinski

Director, Technology Partnerships Office, NIST

Paul Zielinski is the Director of the Technology Partnerships Office (TPO) at the National Institute of Standards and Technology (NIST). TPO serves as the Office of Technology and Research Applications for NIST and is responsible for NIST technology transfer activities including patents, licenses, cooperative research, and small business innovation research. In addition, Paul coordinates the Interagency Workgroup on Technology Transfer that addresses technology transfer policy issues across the United States Federal Government is the past

Chair of the Federal Laboratory Consortium for Technology Transfer. Prior to joining NIST, Paul worked at the Environmental Protection Agency, the Department of Energy, private industry, and served on active duty as a commissioned officer in the United States Army. Paul has Master of Science degree in engineering and Master of Business Administration.

PANEL 4 SPEAKERS



Ms. Lisa Swoboda

Deputy Director, Office of Military Affairs, Maryland Department of Commerce

Ms. Lisa A. Swoboda, a native of Washington, DC, has spent 20 years in the professional field of economic and business development. Joining the Office of Military & Federal Affairs in the winter of 2005, Ms. Swoboda serves as Deputy Director. In addition to her role as Deputy, she serves as a senior advisor and liaison to Maryland Military Alliances and Federal military and civilian facilities including Aberdeen Proving Ground and Joint Base Andrews where Ms. Swoboda serves as an Honorary Ambassador of the 11th Wing. Ms. Swoboda also serves on the States Advisory Council for the national Association of Defense Communities. Ms. Swoboda manages the strategic direction of Federal civilian agency engagement and supervises a number of projects related to Department of Defense actions impacting Maryland's defense community, including a \$2.6 billion defense industry diversification federal grant program and the planning and implementation of Base Realignment and Closure (BRAC) decisions in Maryland.

In partnering with the installation defense communities, Ms. Swoboda works to advance business opportunities with the installation and to support the growing defense missions to include communications, electronics, unmanned aerial systems, chemical-biological and cybersecurity. She instituted the Department's annual Contract Connections signature series promoting contracting opportunities within Federal agencies to Maryland businesses. Ms. Swoboda also initiated the first formal economic impact analysis of Maryland's 17 military facilities. This study has served as the cornerstone to citing installation impacts and to fostering greater awareness of Maryland's largest economic driver.

Prior to joining the Office of Military & Federal Affairs, Ms. Swoboda served as the head on the Commercial Site Consultant team for the department's Division of Business Development. During her years as the department's business development lead to the national commercial real estate industry, she internationally represented Maryland by serving on the Board for the CoreNet Global Mid-Atlantic Chapter.

In addition to her work with the State, Ms. Swoboda previously worked for the Prince George's County Economic Development Corporation. Also added to her resume is her intern work serving on Capitol Hill in the office of Congressman Steny H. Hoyer. She holds a B.A. degree in Political Science from Maryland's top honors college, St. Mary's College of Maryland. Ms. Swoboda resides in Towson, Maryland with her husband and their children.

Dr. Camille Bibeau

Director, Office of Economic Development, Livermore Valley Open Campus, Lawrence Livermore National Laboratory, DOE

Dr. Camille Bibeau is a member of the senior scientific staff at the Lawrence Livermore National Laboratory (LLNL). During her 31 years of ongoing service with the Laboratory, she has significantly contributed to its research and development (R&D), project management, infrastructure planning, economic development, and educational programs.

Dr. Bibeau received her Doctorate in Applied Science from the University of California, Davis and worked as a scientist and/or strategic leader in many capacities: National Ignition Facility (NIF), Global Security, and the National Security Organization. In 2004, she was nationally recognized for her work in solid-state laser technology as applied to fusion energy and received the prestigious “Excellence in Fusion Engineering” award. In 2006, Dr. Bibeau and her team received a national R&D 100 award for their work on high powered frequency conversion. Dr. Bibeau also served as an Adjunct Professor at the Department of Applied Science at the University of California, Davis. She holds three patents and co-authored or contributed to over 75 journal publications and reports.

Dr. Bibeau currently works in the LLNL Director’s Office. She is principally responsible for the development of the Livermore Valley Open Campus (LVOC) for the LLNL site. LVOC is a joint initiative between LLNL and Sandia National Laboratories, California dedicated to the creation of a 100-acre campus that advances partnerships with industry and academia to strengthen our national and economic security. LVOC currently has 250,000 square feet of laboratory and collaborative space that supports both scientific research and education. The Open Campus advances R&D, workforce opportunities, and innovative partnering. Additionally, Dr. Bibeau promotes economic development initiatives in her “East Bay” community. She worked closely with the City of Livermore to launch i-GATE, a regional non-profit organization that assists entrepreneurs and technology start-up companies.



Ms. Jackie Kerby Moore

Executive Director, Sandia S&T Park, Sandia National Laboratories, DOE

Jackie Kerby Moore is the Manager of Technology and Economic Development at Sandia National Laboratories, a U.S. Department of Energy national laboratory. In this role, she leads the New Mexico Small Business Assistance (NMSBA), Entrepreneurial Separation to Transfer Technology (ESTT), Sandia Science & Technology Park (SS&TP), and Small Business Vouchers (SBV) programs for Sandia. In addition, Jackie has been guiding a new public-private initiative for Sandia – the Center for Collaboration and Commercialization (C3).

In related activities, Jackie is the Regional Coordinator for the Mid-Continent Region of the Federal Laboratory Consortium. She is a Past President of the Board of Directors for the Association of University Research Parks (AURP), an international association. She chaired AURP’s first Washington Summit, which resulted in getting the first Science Park legislation introduced in both

the U.S. Senate and House. She currently serves on the Board of Directors for Arrowhead Center at New Mexico State University (NMSU) and the Santa Fe Business Incubator.

Jackie is widely recognized for her activities. She received the *Career Achievement Award* from the AURP, as well as the *Outstanding Alumna Award* from NMSU. She has been recognized as one of New Mexico's *Power Brokers*, was honored for *Who's Who in Technology* in New Mexico, and has appeared on the cover of *New Mexico Woman Magazine*. Jackie has been featured on CNBC television and has been a frequent participant on local radio shows in New Mexico. In addition, she regularly speaks on the topic of Public/Private Partnerships and Research Parks at conferences and events throughout the world, including in China, Taiwan, Finland, France, Spain, Canada, Mexico, and Ireland.

PANEL 4 MODERATOR



Dr. Jeff Degrasse

**Regulatory Counsel, Office of Laboratory Science and Safety,
DHHS-FDA**

In 2008, Jeff received his Ph.D. in chemistry and biology from the Rockefeller University where he applied proteomic techniques to first identify the components of the nuclear pore complex (NPC) of the African trypanosome, and then used the NPC as a model for Eukaryotic evolution through comparative analysis. Soon thereafter, Jeff joined the FDA, where his research program focused on the development of rapid and robust screening methods for the detection and quantification of foodborne protein toxins. In 2015, Jeff joined the

Office of Scientific Integrity, within the Office of the Chief Scientist. There he led a number of projects including improving the management of, and the access to, scientific collections, increasing public access to publications and datasets, and improving laboratory biosafety and biosecurity. He joined the Office of Laboratory Science and Safety in 2016 and oversees a number of projects to ensure FDA's laboratories and workplaces are operated in a safe and secure manner to protect employees, the surrounding communities, and the environment; research and disseminate innovative ideas and validated methods for safe and secure laboratory practices; support high-quality (i.e., accurate, reliable, and timely) FDA laboratory results; and promote a culture of shared responsibility and safety.

Appendix C.

Topics for Breakout Discussions

The breakout discussions handout reproduced below was provided to participants of the 2017 Federal Facility Workshop.

Options for Breakout Discussion Topics	
A. Regulatory Barriers and Funding	<p>Reducing regulatory barriers is essential towards improving facility management. See new Executive Order 13777, “Enforcing the Regulatory Reform Agenda” and OMB Guidance M-17-23, “Guidance on Regulatory Reform Accountability.”</p> <ol style="list-style-type: none"> 1. What have you found to be burdensome regulatory or legislative barriers to forming interagency facility partnerships? Describe their challenges. 2. What new investment models and mechanisms are underutilized or are desired to fund or finance facilities? E.g., pooling and distributing end-of-year funds across one or multiple departments and agencies to fund high-priority facility needs.
B. Obstacles to Forming Partnerships	<p>The 2016 Workshop discussions identified a number of common obstacles that hinder the development of interagency and multi-party facility partnerships, including conflicts of interest, restrictive or lack of leasing authorities, budgeting/scorekeeping rules, and incompatible laboratory security protocols across agencies. Identifying best practices and commonalities in goals for partnerships might help leverage resources and efforts.</p> <ol style="list-style-type: none"> 1. Interagency Partnerships: How can we better understand interdependencies amongst National Security Laboratories (NSL) and their contributions to fulfilling national security missions? How could this help in identifying opportunities for jointly funding facility needs? 2. Public-Private Partnerships: What are common issues preventing public-private partnerships at Federal laboratory facilities and infrastructure? This can include construction or large-scale recapitalization of facilities that provide new capabilities.
C. Planning and Risks	<p>Strategic planning and budget processes are used to facilitate the achievement of long-term goals and to ensure that management of risk is appropriately aligned with the organization’s overall mission, objectives, and priorities.</p> <ol style="list-style-type: none"> 1. Risks can include decreased or delayed funding; how are planning and budgeting processes used to identify and mitigate risks to facilities and their impacts on mission readiness? How does risk play into decision-making around public-private partnerships? 2. Are there other main risks that impact mission readiness of facilities? Are these inputs into decision-making for facility investments? If not, how could they be better integrated into processes? 3. What metrics are used to communicate the impact on capabilities and mission from facilities and partnerships? 3. How could a Federal-wide strategic plan for NSL facilities that identifies priorities and specific capability areas help with strategic planning for resources? Are there already good examples in specific domain areas?
D. Economic Impacts	<p>Communicating the value of facility partnerships to local, State, and regional economies is essential to attracting funding and improving research outcomes. It is often difficult to effectively connect laboratory activities to mission and capabilities.</p> <ol style="list-style-type: none"> 1. What metrics of success are used to communicate the economic impacts from facilities and partnerships? How are potential impacts communicated before partnerships are executed? <ul style="list-style-type: none"> o Are or can these be applied to NSLs? 2. How is success defined in developing facility partnerships? 3. How are costs and benefits communicated?
E. Modernizing Portfolio Management	<p>Numerous agencies are leveraging emerging technologies and data analytics (Big Data, machine learning) to gather relevant property use information (condition, geographically co-located facilities, facility utilization, etc.) to improve facility portfolio management. Examples include GSA’s Asset Portfolio Tool and USACE’s BUILDER Sustainment Management System.</p> <ol style="list-style-type: none"> 1. Is data analytics used to improve facility portfolio management decisions? If so, how? If not, why not? What are the challenges in integrating data analytics into investment decisions? 2. Is there an interest in leveraging data analytics for this use? If so, what are some primary questions that need to be answered that would result in more efficient planning of resources to NSL or facilities?

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Abbreviations

AFRL	Air Force Research Laboratory
ARL	Army Research Laboratory
ARS	Agricultural Research Service
CBD	Chemical and Biological Defense
CBDP	Chemical and Biological Defense Program (DoD)
CHNS	Committee on Homeland and National Security
CNST	Center for Nanoscale Science and Technology
CRADA	cooperative research and development agreement
DHS	Department of Homeland Security
DHHS	Department of Health and Human Services
DoD	Department of Defense
DOE	Department of Energy
EUL	Enhanced Use Lease
F&I	Facilities and Infrastructure
FDA	Food and Drug Administration
FLC	Federal Laboratory Consortium
GSA	General Services Administration
HSARPA	Department of Homeland Security Advanced Research Projects Agency
IDA	Institute for Defense Analyses
LLNL	Lawrence Livermore National Laboratory
LVOC	Livermore Valley Open Campus
NASA	National Aeronautics and Space Administration
NICBR	National Interagency Confederation for Biological Research
NIAID	National Institute of Allergy and Infectious Diseases
NIH	National Institutes of Health
NIST	National Institute of Standards and Technology
NSL	National Security Laboratory
NSTC	National Science and Technology Council
NSWC	Naval Surface Warfare Center
ODNI	Office of the Director of National Intelligence
OMB	Office of Management and Budget
OSTP	Office of Science and Technology Policy
PIA	partnership intermediate agreement
R&D	research and development
RDT&E	research, development, test and evaluation
SNL	Sandia National Laboratories
S&T	Science and Technology
STEM	science, technology, engineering, and mathematics

STPI
T2
USDA
WBI

Science and Technology Policy Institute
technology transfer
United States Department of Agriculture
Wright Brothers Institute