PUBLIC PROGRAM BOOK

Emerging Trends in Aviation Safety

Committee Meeting #2
20 October 2021

The National Academies of
SCIENCES • ENGINEERING • MEDICINE

TRB
TRANSPORTATION RESEARCH BOARD

The National Academies of
SCIENCES • ENGINEERING • MEDICINE

EMERGING TRENDS IN AVIATION SAFETY

Meeting Agenda

ZoomGov Meeting: https://nas-sec.zoomgov.com/j/1616918575 (Please do not circulate this link)

Phone: +1 551 285 1373 Meeting ID: 161 691 8575

October 20, 2021

MEETING OPEN TO THE PUBLIC

12:30 – 1:30PM **Briefing on FAA Commercial Aviation Safety Team (CAST) and Aviation Safety Information Analysis and Sharing (ASIAS) system**

- Vivek Sood, Technical Advisor Vulnerability Discovery and Safety Measurement at FAA

1:30 – 2:00PM **Break**

2:00 – 4:00PM **Perspectives from Key Stakeholders**

- 2:00 Becky Hooey, Director of Aviation Safety Reporting System (ASRS) and Confidential Close Call Reporting System (C3RS) at NASA
- 2:30 Andy Cebula: Vice President of NextGen and New Entrants at A4A
- 2:45 David Silver: Vice President for Civil Aviation at AIA
- 3:00 Captain Steve Jangelis: Aviation Safety Chair at ALPA
- 3:15 Andrew Le Bovidge: Executive Vice President of NATCA
- 3:30 Joseph Sedor: Chief of Major Investigations at NTSB

CLOSED SESSION

EMERGING TRENDS IN AVIATION SAFETY

Statement of Task

In response to a request from Congress, this project will "identify, categorize, and analyze emerging safety trends in air transportation." The committee will review data and analyses of all relevant sources of information, such as operational data being used by the Federal Aviation Administration (FAA) and the air transport industry to monitor for potential safety concerns; government and industry voluntary aviation safety reporting systems; FAA's annual safety culture assessment; and other sources the committee deems appropriate, including National Transportation Safety Board accident investigations; FAA investigations of accidents and incidents; air carrier incidents and safety indicators; and international investigations of accidents and incidents, including information from foreign authorities and the International Civil Aviation Organization. The committee will assess whether these available sources of information are being analyzed in ways that can help identify emerging safety risks as the aviation system evolves and whether other information should be collected and analyzed for this purpose, such as data on accident precursors. The committee may engage in its own empirical analyses of databases.

The project will focus primarily on commercial air transportation sector, but will also include other current and prospective users of the national airspace system that could pose risks to commercial aviation. The committee will draw on the results of FAA's annual internal safety culture assessments and also advise the agency on data and approaches for assessing safety culture to assure that FAA is identifying emerging risks to commercial aviation and sharing that information throughout the agency and with the public.

The project will produce an initial report in mid-2022, biennial reports through 2030, and a final report in 2031. It is expected that the committee's first report will include a high-level assessment of the efficacy of domestic public and private sources of data and information for identifying and assessing emerging risks and advise on data gaps that need filling. The first report is also expected to include the approach the committee intends to pursue in subsequent biennial reports to assess the robustness of domestic and international data sources and processes for analyzing them for the purpose of identifying emerging risks to commercial air transportation. In addition to documenting its study findings in each report, the committee may offer advice to Congress, FAA, industry, and others on options for improving means for identifying, monitoring, understanding, and addressing emerging aviation safety risks, including supplementing, improving, and harmonizing existing databases, reporting systems, and analysis methods.

EMERGING TRENDS IN AVIATION SAFETY

From the Consolidated Appropriations Act, 2021

SEC. 132. EMERGING SAFETY TRENDS IN AVIATION.

(a) ***General*** *—Not later than 180 days after the date of enactment of this title, the Administrator shall enter into an agreement with the Transportation Research Board for the purpose of developing an annual report identifying, categorizing, and analyzing emerging safety trends in air transportation.*

(b) ***Factors*** *—The emerging safety trends report should be based on the following data:*

(1) The National Transportation Safety Board's investigation of accidents under section 1132 of title 49, United States Code 554.

(2) The Administrator's Investigations of accidents under section 40113 of title 49, United States Code.

(3) Information provided by air operators pursuant to safety management systems.

(4) International investigation of accidents and incidents, including reports, data, and information from foreign authorities and ICAO.

(5) Other sources deemed appropriate for establishing emerging safety trends in the aviation sector, including the FAA's annual safety culture assessment required under subsection (c)

(c) ***Safety Culture Assessment*** *- The Administrator shall conduct an annual safety culture assessment through fiscal year 2031, which shall include surveying all employees in the FAA's Aviation Safety organization (AVS) to determine the employees' collective opinion regarding, and to assess the health of, AVS' safety culture and implementation of any voluntary safety reporting program.*

(d) ***Existing Reporting System*** *– The Executive Director of the Transportation Research Board, in consultation with the Secretary of Transportation and Administrator, may take into account and, as necessary, harmonize data and sources from existing reporting systems within the Department of Transportation and FAA.*

(e) ***Biennial Report To Congress*** *– One year after the Administrator enters into the agreement with the Transportation Research Board as set forth in subsection (a) and biennially thereafter through fiscal year 2031, the Executive Director, in consultation with the Secretary and Administrator, shall submit to the congressional committees of jurisdiction a report identifying the emerging safety trends in air transportation.*

Committee on Emerging Trends in Aviation Safety

Chair: Amy Ruth Pritchett
Professor and Head of the Department of Aerospace Engineering
Pennsylvania State University

Committee Members

Cody Fleming
Associate Professor of Mechanical Engineering
Iowa State University

R. John Hansman, Jr.
T. Wilson Professor of Aeronautics and Astronautics
Air Transportation
Massachusetts Institute of Technology

Christopher Hart
Former Chairman
National Transportation Safety Board

Margaret T. Jenny
Former President
Radio Technical Commission for Aeronautics

Paul McCarthy
Former Vice President, Technical
International Federation of Air Line Pilot's Associations

Nadine B. Sarter
Professor, Industrial & Operations Engineering and Robotics
Director, Center for Ergonomics
Industrial and Operations Engineering
University of Michigan

Kathleen M. Sutcliffe
Bloomberg Distinguished Professor
Carey Business School
Johns Hopkins University

Dr. Ashok Srivastava
Senior Vice President
Chief Data Officer
Intuitive Company

Alyson Wilson
Associate Vice Chancellor for National Security & Office of Research and Innovation
Department of Statistics
North Carolina State University

Suggested Videoconferencing Procedures

Zoom Meeting Sign-on & Q&A Processes, Etiquette and Tips

Meeting Moderators:
Dr. Amy Pritchett
Dr. Lida Beninson

Sign On Processes:
- Dial in 10 minutes before the meeting starts to confirm connectivity.
- Type in your full name, not just your email address in participant window.
- At start time, all participants will be muted except the speaker.
- Moderator will take roll 5 minutes before the meeting start.

Q&A Process:
- Participants 'raise hand' and moderator will call on participant for clarifying questions related to immediate slide, topic, or question from a participant.
- Longer-form questions to be held until Q&A session following the presentation.
    - If possible, please write the question in the chat box so all participants can see it.

For every session:
- Questions will be first come, first served.
- Moderator reserves right to move questions to front if it is relevant to the discussion at hand.
- Moderator will ensure as many participants have a chance to ask questions as possible.
    - Moderator will call on those who haven't asked questions before returning to a participants' second/third questions per session.
- Moderator will have control over time limits and microphones.

During the presentations:
- Speakers will pause halfway through presentations to field clarification questions for 5 minutes.
- Clarification question example:
    - "What does that acronym stand for?"
    - "On slide 3, do you mean X or Y?"
- Longer questions will be held for the discussion. Examples:
    - "Please elaborate on point X."
    - "What about Y?"

During the Q&A portion:
- If your question has already been answered, please note in the chat box to disregard.
- Once each question has been answered, the session will open to comments.
    - Use the 'hand raise' to comment via microphone to the group.
    - Moderator will do their best to call on raised hands in the order they were received.

Videoconference Etiquette Tips:

- Arrive early
- Know how to use the meeting technology
- Avoid bandwidth consuming activities such as streaming during conference
- Sit up and keep your microphone close
- Speakers should use web camera if available; all attendees are encouraged to use web cameras as well for a more interactive experience.
- Limit background noise (please mute phone or computer notifications)
    - We know many are at home; do the best you can!
    - Mute microphone when not speaking
- Identify yourself
- Avoid multitasking
- Speak clearly
- Be polite
- Make your presence known
- Keep questions short and on-topic

Zoom Shortcuts:

M is for mute. Press Cmd+Ctrl+M (macOS) or Alt+M (Windows) when you are the meeting host and want to mute everyone else on the line.

S is for share. Press Cmd+Shift+S (macOS) or Alt+Shift+S (Windows) to share your screen.

About The Transportation Research Board

The **Transportation Research Board** is one of seven major programs of the National Academies of Sciences, Engineering, and Medicine. The mission of the Transportation Research Board is to provide leadership in transportation improvements and innovation through trusted, timely, impartial, and evidence-based information exchange, research, and advice regarding all modes of transportation. The Board's varied activities annually engage about 8,000 engineers, scientists, and other transportation researchers and practitioners from the public and private sectors and academia, all of whom contribute their expertise in the public interest. The program is supported by state departments of transportation, federal agencies including the component administrations of the U.S. Department of Transportation, and other organizations and individuals interested in the development of transportation.

Learn more about the Transportation Research Board at www.TRB.org.

About Consensus Study Reports

Consensus Study Reports published by the National Academies of Sciences, Engineering, and Medicine document the evidence-based consensus on the study's statement of task by an authoring committee of experts. Reports typically include findings, conclusions, and recommendations based on information gathered by the committee and the committee's deliberations. Each report has been subjected to a rigorous and independent peer-review process and it represents the position of the National Academies on the statement of task.

Statement on Diversity, Equity, and Inclusion

The National Academies of Sciences, Engineering, and Medicine value diversity in our members, volunteers, and staff and strive for a culture of inclusion in our workplace and activities. Convening a diverse community to exchange ideas and perspectives enhances the quality of our work and increases our relevance as advisers to the nation about the most complex issues facing the nation and the world.

To promote diversity and inclusion in the sciences, engineering, and medicine, we are committed to increasing the diversity of the National Academies' staff, members, and volunteers to reflect the populations we serve. We pledge to cultivate an environment and culture that promotes inclusion and values respectful participation of all individuals who help advance the mission of the institution.

Speaker Bios

Andy Cebula
Andy Cebula is Vice President, NextGen and New Entrants for Airlines for America. Cebula manages A4A's efforts to achieve benefits from NextGen as the Federal Aviation Administration implements modernization of the air traffic control system and deriving operational efficiency and effectiveness from the national airspace system. He also advocates for members in issues affecting the integration of commercial space and unmanned aircraft systems into the national airspace system, and A4A's flight operations initiatives. Most recently this has been focused on the industry's response to the COVID-19 crisis.

A graduate of Auburn University's Aviation Management Program, Cebula has nearly four decades of aviation policy experience in safety, operations, security and air traffic control. He joined A4A from RTCA where he served as Senior Vice President, Policy and Programs. In that role, he managed the NextGen Advisory and Tactical Operations advisory committees addressing the future of the aviation system and key issues affecting airline and other aircraft operations. His professional experience also includes positions at the Aircraft Owners and Pilots Association, the FAA, the National Air Transportation Association and Eastern Airlines.

Captain Steve Jangelis
Captain Steve Jangelis is the Aviation Safety chair for the Air Line Pilots Association, Int'l Air Safety Organization. The ALPA Air Safety Organization has over 425 line-pilot volunteer subject-matter experts and is the largest nongovernmental safety organization in the world. Captain Jangelis is responsible for safety matters representing over 61,000 pilots at 38 airlines in the United States and Canada.

Captain Jangelis has an abundance of safety and operational experience both domestically, internationally, including passenger and all-cargo operations. Currently a line captain on the Boeing 757/767 for Delta Air Lines, Captain Jangelis has previously flown the Airbus A320, Boeing 717, 727, and the McDonnell Douglas MD-80/90 series aircraft. Captain Jangelis has a diverse background in aviation. He gained airport operations experience as an airfield operations and maintenance technician at a Midwest U.S. airport and has been a guest speaker and panelist at many airport accreditation schools' training seminars. Captain Jangelis has participated in safety risk management panels on runway construction and airspace modifications and also participated as a simulator operational testing pilot for Data-Comm taxi installations, Final Approach Runway Occupancy Signal (FAROS), and SMGCS evaluations. Captain Jangelis is a former simulator instructor and line check airman.

Captain Jangelis serves as the industry co-chair of the Federal Aviation Administration's Aviation Safety Information Analysis and Sharing (ASIAS) system. He has represented ALPA as a member on several government and industry groups. These include his tenure as a member on the REDAC subcommittee for Airports, Industry Co-Chair for the FAA's Runway Safety Council and he also served as a member on the FAA's Airport Construction Advisory Council.

Captain Jangelis is an accredited ALPA Accident Investigator. He has served as ALPA party coordinator and participated in Airports, Voice Recorder and Structures Groups in official NTSB accident and incident investigations for the Delta Air Lines ALPA Master Executive Council. Captain Jangelis holds a Bachelor of Science degree in Aviation Flight Management from Lewis University in Illinois.

Andrew LeBovidge
Andrew LeBovidge is serving his first three-year term as the eighth executive vice president of NATCA. He was elected by acclamation and took office on Sept. 1, 2021. LeBovidge, a veteran air traffic controller from Houston Center (ZHU), previously served on NATCA's National Executive Board as Southwest Regional Vice President (RVP) from 2015-2021.

He started his air traffic control career at ZHU in 1992. He has served as a representative for NATCA since 1998; area representative from 1998-2000; ZHU FacRep from 2000-2015; alternate Southwest RVP from 2003 until 2015; and then two terms as the Southwest RVP. He served on the 2009 collective bargaining agreement negotiating team, represented NATCA on the National Academy of Sciences committee on air traffic controller staffing, and a number of other national groups and projects, and has been involved with NATCA's National Committee on Training, the NEST, the CRWG, the NSTLC, and the Union Synergy and Drug and Alcohol committees.

David Silver
David Silver is the Vice President for Civil Aviation at the Aerospace Industries Association (AIA). In this role, he uses his expertise in aviation certification, safety, and emerging technologies to collaborate with AIA members and advance public policies and positions beneficial to the entire industry and the United States. David represents AIA on a number of boards and committees, including the European Union Aviation Safety Agency Stakeholder Advisory Board and the Commercial Aviation Safety Team. He was also nominated by Secretary of Transportation Elaine Chao to serve on the U.S. Drone Advisory committee. Silver joined AIA with over 20 years of experience in aviation, most recently serving as the Director of Engineering & Regulatory Affairs for the Boeing Company in Washington D.C., where he worked extensively with both regulatory and legislative committee leadership. He developed an array of experience in working with a variety of international organizations involved in certification and validation programs.

Silver also served as the 787-8 Deputy Fleet Chief for the introduction of aircraft into commercial operations. Silver worked with airline customers, regulators, and airplane program chief engineers on model-specific technical and safety issues affecting the in-service fleet to increase reliability and ensure smooth operations for the airlines. Silver also has vast experience working Airplane Systems for airplane programs such as the 777 and 767. Silver served for 22 years in the Army National Guard as an Engineer Officer, with successive leadership roles culminating in Battalion Command and Assistant G3 for Washington State. Silver received the Legion of Merit and retired as a Lieutenant Colonel in 2014.

Silver holds a B.S. in engineering and B.A. political science from Arizona State University and a M.S. in engineering management from Washington State University. He is also a graduate of the U.S. Army Command and General Staff College and a Fellow of the Royal Aeronautical Society.

Committee Bios

Amy R. Pritchett, Chair
Amy R. Pritchett, chair, is a professor and head of the Department of Aerospace Engineering at the Pennsylvania State University. Previously, she was on the faculty of the Schools of Aerospace Engineering and Industrial and Systems Engineering at the Georgia Institute of Technology, and she served via the Intergovernmental Personnel Act as the director of NASA's Aviation Safety Program for 2 years. Her research focuses on the intersection of technology, expert human performance, and aerospace operations, with a particular focus on designing to support safety. Her research topics have included autonomous flight and unmanned aerial vehicles, vehicle dynamics and controls, and vehicle systems engineering. She is currently editor-in-chief of the Journal of Cognitive Engineering and Decision Making. She has served on many National Academies' committees, including chair of the Committee for a Study of FAA Air Traffic Controller Staffing and as a member of the Committee on Assessing the Risks of Unmanned Aircraft Systems (UAS) Integration, and Committee of the Federal Aviation Administration Research Plan on Certification of New Technologies into the National Airspace System. In addition, she served as a member of the National Academies' Aeronautics and Space Engineering Board. She is a licensed pilot in airplanes and sailplanes. Dr. Pritchett earned a ScD, SM, and SB in aeronautics and astronautics from MIT.

Cody Fleming
Cody Fleming is an Associate Professor with the Department of Mechanical Engineering at Iowa State University. Prior to Iowa State, he had joint appointments in Systems Engineering and Mechanical and Aerospace Engineering at the University of Virginia. He was a founding member of the interdisciplinary Link Lab for Cyber-physical Systems at UVA. He also has a wide range of interest ranging from Dynamics and Control, System Safety, Autonomy and Planning, System Integration, and Safety by Design. Dr. Fleming has a Bachelor's degree in Engineering from Hope College, a Master of Engineering in Civil and Environmental Engineering from MIT, and a Doctor of Philosophy Degree in Aeronautics and Astronautics from MIT.

R. John Hansman, NAE
R. John Hansman is the T. Wilson Professor of Aeronautics and Astronautics at the Massachusetts Institute of Technology (MIT), where he is the director of the MIT International Center for Air Transportation. He conducts research in the application of information technology in operational aerospace systems. He has over 5800 hours of pilot in-command time in airplanes, helicopters and sailplanes including meteorological, production and engineering flight test experience. He chairs the U.S. Federal Aviation Administration Research Engineering and Development Advisory Committee as well as other national and international advisory committees. He is a member of the U.S. National Academy of Engineering, is a Fellow of the AIAA and has received numerous awards including the AIAA Dryden Lectureship in Aeronautics Research, the ATCA Kriske Air Traffic Award, a Laurel from Aviation Week & Space Technology, and the FAA Excellence in Aviation Award. He is currently a member of the Board on Army Science and Technology, and the Committee on Aviation Safety Assurance at the National Academies. He holds a Ph.D. in physics, meteorology, and aeronautics from MIT.

Christopher A. Hart
Christopher A. Hart is an American lawyer, government official, and pilot. He was appointed as the 13th Chairman of the National Transportation Safety Board on April 26 2014. He became a Member of the Board in August 2009, and was subsequently designated Vice Chairman and was nominated for a second term as Board Member in August 2013, and his nomination for a third term as Vice Chairman was confirmed by the Senate in October 2013. He served as Acting Chairman from April 26, 2014, until he was appointed as Chairman. He joined the Board for the first time in 1990 and served until 1993. From 1993 until 1995, he was Deputy Administrator of the National Highway Traffic Safety Administration, then went on to serve as Federal Aviation Administration (FAA) Assistant Administrator for System Safety and FAA Deputy Director for Air Traffic Safety Oversight before returning to the Board in 2009. He holds a law degree from Harvard University and master's and bachelor's degrees in aerospace engineering from Princeton University. Hon. Hart is a member of the District of Columbia Bar and the Lawyer-Pilots Bar Association, and is a licensed pilot with commercial, multi engine, and instrument ratings.

Margaret T. Jenny
Margaret T. Jenny is a retired President of RTCA, Inc., a private, not-for-profit corporation dedicated to the forging of wide-ranging consensus-based recommendations in aviation policy, technology, and modernization. Prior to joining RTCA, she served as chief executive officer of MJF Strategies, LLC, an aviation consulting firm; vice president of corporate business development at ARINC; director of airline business and operations analysis for US Airways; and technical director at The MITRE Corporation. Her career focuses on helping diverse and competing stakeholders find common ground to expedite the continual modernization of the national airspace. She has served as the 2016 president of the Aero Cub of Washington. She is has been a member of the National Academies' Committee on the Federal Transportation R&D Strategic Planning Process; the Committee on Review of the National Transportation Science and Technology Strategy; and the Aeronautics Research and Technology Roundtable. Ms. Jenny earned her M.S. in computer science from American University.

Paul McCarthy
Paul McCarthy served as Chair of the Air Line Pilots Association (ALPA) and the International Federation of Air Line Pilots' (IFALPA) Associations from June 1990 to December of 2012. Prior to that experience he was a

Captain for Delta Airlines from January 1973 to 2004. His expertise is sought in aviation flying and safety issues and he has testified before the House and Senate committees on these topics. Captain McCarthy hold a Bachelor's Degree in Accounting from the University of Notre Dame, and a Juris Doctor Degree from Suffolk University Law School.

Nadine B. Sarter, NAE

Nadine B. Sarter is a professor in the Department of Industrial and Operations Engineering, a member of the core faculty at the Robotics Institute, and the director of the Center for Ergonomics at the University of Michigan. She is also the director of the Occupational Safety Engineering and Ergonomics Program at the University of Michigan Center for Occupational Health and Safety. Her research in cognitive systems engineering focuses on the design and evaluation of tasks, protocols and interfaces that support safe and effective human-automation/robot interaction and human-machine teaming. Specific research interests include contributors to and performance effects of system complexity, haptic and multimodal display design, transparency and operator trust in highly autonomous systems, adaptive function allocation, attention and interruption management, and the design of decision aids for high-tempo operations. She has conducted her work in a wide range of application domains, most notably commercial and military aviation (both manned and unmanned operations), space, medicine, military operations, and the automotive industry. She serves as associate editor for Human Factors and is a member of the editorial boards of the Journal of Cognitive Engineering and Decision Making and the International Journal of Aviation Psychology. She is a fellow of the Human Factors and Ergonomics Society, and a member of the American Institute of Aeronautics and Astronautics, the Association for Computing Machinery, and the Society for Human Performance in Extreme Environments. She is an affiliate member of the American Psychological Association (APA) Division 21 (Applied Experimental and Engineering Psychology). She is a member of the National Academy of Engineering (NAE), a member of the 2017-2018 Cohort of the UM Rudi Ansbacher Women in Academic Medicine Leadership Scholars Program, and a member of the Human Factors and Ergonomics Society (HFES) fellow selection committee. She was a participant in the Human Performance Expert Panel to Inform the Air Force Strategy 2030 and a member of the National Academies (Board on Human-Systems Integration) Expert Panel on FAA Staffing Issues. She received an M.S. in applied and experimental psychology and a B.S. in psychology from the University of Hamburg in Germany in 1983 and 1981 respectively. She received a Ph.D. in industrial and systems engineering from Ohio State University in 1994.

Ashok Srivastava

Ashok N. Srivastava, is the Senior Vice President and Chief Data Officer at Intuit. He is responsible for setting the vision and direction for AI and Data across Intuit to power prosperity across the world. He is an Adjunct Professor at Stanford and a member of the Board of Directors of the University of Colorado Foundation and a Fellow of the IEEE, the American Association for the Advancement of Science (AAAS), and the American Institute of Aeronautics and Astronautics (AIAA). Previously, he was the VP of Big Data and Artificial Intelligence Systems and the Chief Data Scientist at Verizon. His global team focused on building new revenue-generating products and services powered by big data and artificial intelligence. He was also the Editor-in-Chief of the AIAA Journal of Aerospace Information Systems. Previously, he led advanced technology programs in Aerospace, Space Systems, and Earth and Space Sciences at NASA. He is the author of over 100 research articles in data mining, machine learning, and text mining, and has edited a book on Text Mining: Classification, Clustering, and Applications. He has won numerous awards including the IEEE Computer Society Technical Achievement Award for "pioneering contributions to intelligent information systems," the NASA Exceptional Achievement Medal for contributions to state-of-the-art data mining and analysis, the NASA Honor Award for Outstanding Leadership, the NASA Distinguished Performance Award, several NASA Group Achievement Awards, the Distinguished Engineering Alumni Award from UC Boulder, the IBM Golden Circle Award, and the Department of Education Merit Fellowship. Mr. Ashok holds a Ph.D. in Electrical Engineering from the University of Colorado at Boulder.

Kathleen Sutcliffe

Kathleen Sutcliffe is a Bloomberg Distinguished Professor with appointments in the Carey Business School, the School of Medicine (Anesthesia and Critical Care Medicine), the School of Nursing, the Bloomberg School of

Public Health, and the Armstrong Institute for Patient Safety and Quality. Her research program has been devoted to investigating how organizations and their members cope with uncertainty and how organizations can be designed to be more reliable and resilient. She has investigated organizational safety, high reliability, and resilience practices in oil and gas exploration and production, chemical processing, steel production, wildland firefighting, and in healthcare. She serves on the editorial boards of several journals and has served as a proposal reviewer for the National Academies of Science, Engineering, and Medicine. She has consulted with the leadership teams of numerous companies including Goldman Sachs, Georgia Pacific, Marathon Oil, and ThyssenKrupp. She has Doctor of Philosophy Degree in Organization Theory and Organizational Behavior from the University of Texas at Austin.

Alyson Wilson
Alyson Wilson is the Associate Vice Chancellor for National Security and Special Research Initiatives at North Carolina State University. She is also a professor in the Department of Statistics, principal investigator for the Laboratory for Analytic Sciences, and director of the Data Science Initiative. She is a Fellow of the American Statistical Association and the American Association for the Advancement of Science. Her research interests include statistical reliability, Bayesian methods, and the application of statistics to problems in defense and national security. Prior to joining NC State, she was a research staff member at the IDA Science and Technology Policy Institute in Washington, DC (2011-2013); an associate professor in the Department of Statistics at Iowa State University (2008-2011); a technical staff member in the Statistical Sciences Group at Los Alamos National Laboratory, where she continues as a guest scientist; and a senior statistician and operations research analyst with Cowboy Programming Resources (1995-1999). She is the winner of the American Statistical Association Section on Statistics in Defense and National Security Distinguished Achievement Award (2018), NC State Alumni Association Outstanding Research Award (2017), and the Army Wilks Memorial Award (2015). In addition to numerous publications, she has co-authored a book, Bayesian Reliability, and has co-edited two other books, Statistical Methods in Counterterrorism: Game Theory, Modeling, Syndromic Surveillance, and Biometric Authentication and Modern Statistical and Mathematical Methods in Reliability. She has participated in seven previous National Academies' studies, including the Committee on Methodological Improvements to the Department of Homeland Security's Biological Agent Risk Analysis. Dr. Wilson received her Ph.D. in Statistics from Duke University.