

Protecting Critical Technologies for National Security in an Era of Openness and Competition

Committee

Patrick D. Gallagher

Co-Chair

Patrick D. Gallagher is chancellor of the University of Pittsburgh, a role he has held since 2014 after having spent more than two decades in public service. In 2009, he was appointed to direct the National Institute of Standards and Technology. Dr. Gallagher has served on a number of National Academies committees, including the Committee on Scientific Assessment of Proposed U.S. Neutrino Experiments (2002), the Committee on Condensed Matter and Materials Research (2001–2005), the Committee on New Materials Synthesis and Crystal Growth (2007–2009), and the Government-University-Industry Research Roundtable (2009–2013). He is currently chair of the board of directors of the American Association of Universities (through October 2022). Dr. Gallagher received a Ph.D. in physics from the University of Pittsburgh in 1991.

Susan M. Gordon

Co-Chair

The Honorable Susan M. Gordon served as principal deputy director of national intelligence from 2017 to 2019 and as the deputy director of the National Geospatial-Intelligence Agency from 2015 to 2017. She joined the Central Intelligence Agency (CIA) in 1980 and served for 29 years, rising to senior executive positions in each of the agency's then four directorates: operations, analysis, science and technology, and support. In 1998, Ms. Gordon led the effort that culminated in the formation of In-Q-Tel, the CIA's venture arm. She is a fellow at Duke and Harvard universities; serves on several boards, including CACI International, Avantus Federal, BlackSky Technology, and MITRE; and advises several companies, including Microsoft Corporation. Ms. Gordon received a B.S. in zoology/biomechanics from Duke University in 1980.

Robert J. Birgeneau

Member

Robert J. Birgeneau currently holds the Arnold and Barbara Silverman distinguished chair and faculty appointments in the departments of Physics, Materials Science and Engineering, and Public Policy at the University of California, Berkeley. He served as chancellor of the University of California, Berkeley, from 2004 to 2013. Dr. Birgeneau's research is primarily concerned with the phases and phase transition behavior of novel states of matter. Previously, he served as president of the University of Toronto and dean of science at the Massachusetts Institute of Technology. Dr. Birgeneau is a member of the National Academy of Sciences and a fellow of the Royal Society of London, the American Philosophical Society, and other scholarly societies. He has served as a member of the National Academies' Committee on Women in Science, Engineering, and Medicine and the Committee on Maximizing the Potential of Women in Academic Science and Engineering. Dr. Birgeneau received his Ph.D. in physics from Yale University.

Robert C. Dynes

Member

Robert C. Dynes served as the 18th president of the University of California (UC) from 2003 to 2008. He is currently a professor of physics at UC San Diego, where he founded an interdisciplinary laboratory in which chemists, electrical engineers, and private industry researchers investigate the properties of metals, semiconductors, and superconductors. Dr. Dynes also served as the sixth chancellor of UC San Diego, following a 22-year career at AT&T Bell Laboratories, where he served as department head of semiconductor and material physics research and director of chemical physics research. He is a member of the National Academy of Sciences and currently serves as a member of the National Academies' Intelligence Community Studies Board. He chaired the Nuclear and Radiation Studies Board and the Committee on Disposal of Surplus Plutonium in the Waste Isolation Pilot Plant, among others. Dr. Dynes received his Ph.D. in physics from McMaster University in 1958.

Deborah Frincke

Member

Deborah Frincke is associate laboratory director for national security at Sandia National Laboratories. Previously, she was associate laboratory director for national security sciences at Oak Ridge National Laboratory (ORNL), where she guided the research and development of science-based responses to complex threats that put public safety, national defense, energy infrastructure, and the economy at risk. Dr. Frincke joined ORNL from the National Security Agency (NSA), where she served in three roles between 2011 and 2020. As director of research at NSA from 2013 through early 2020, she led what is perhaps the largest in-house research organization in the U.S. Intelligence Community. In addition to being a founding member of the NSA board of directors, Dr. Frincke also served as the agency's science advisor and was the first NSA Innovation Champion. Prior to joining NSA, she served as full professor at University of Idaho and chief scientist for cybersecurity at Pacific Northwest National Laboratory; she also launched a successful cybersecurity startup company, TriGeo Network Systems. Dr. Frincke received a Ph.D. in computer science/security from the University of California, Davis, in 1992.

Leroy E. Hood

Member

Leroy E. Hood is senior vice president and chief science officer at Providence St. Joseph Health, and chief strategy officer, cofounder, and professor at the Institute for Systems Biology. Currently, he carries out studies in Alzheimer's disease, cancer, and wellness, and is pioneering a 1 million-patient genome/phenome project for Providence St. Joseph Health; he seeks to bring scientific (quantitative) wellness to the contemporary U.S. health care system. Dr. Hood is a member of the National Academy of Sciences, the National Academy of Engineering, and the National Academy of Medicine. He has served as a member on the National Academies' Division Committee for the Health and Medicine Division, the Committee on Human and Environmental Exposure Science in the 21st Century, and the Committee on Defining and Advancing the Conceptual Basis of Biological Science in the 21st Century, among others. Dr. Hood received his M.D. from the Johns Hopkins University School of Medicine in 1964 and his Ph.D. in biochemistry from the California Institute of Technology in 1968.

Michael J. Imperiale

Member

Michael J. Imperiale is Arthur F. Thurnau Professor in the Department of Microbiology and Immunology at the University of Michigan. He also served as Associate Vice President of Research until July 2022. With research focused on the study of DNA tumor viruses, he has made important contributions to our understanding of how these viruses regulate expression of their genes, how they contribute to oncogenesis, and how they interact with the infected cell in order to cause acute disease. Dr. Imperiale has served as a member of the National Academies' Committee on Science, Technology, and Law; chair of the Committee on Strategies for Identifying and Addressing Biodefense Vulnerabilities Posed by Synthetic Biology; and a member of the Committee on Ethical and Societal Implications of Advances in Militarily Significant Technologies That Are Rapidly Changing and Increasingly Globally Accessible. Dr. Imperiale received a Ph.D. in biological sciences from Columbia University in 1981.

J. Michael McQuade

Member

J. Michael McQuade serves as special advisor to the president at Carnegie Mellon University. Previously, he served as Carnegie Mellon's vice president for research. From 2006 to 2018, Dr. McQuade was senior vice president for science & technology at United Technologies Corporation, where he provided strategic oversight and guidance for research, engineering, and development activities that focused on a broad range of high-technology products and services for the global aerospace and building-systems industries. He has also held senior positions with technology development and business oversight at 3M, Imation, and Eastman Kodak, including vice president of 3M's Medical Division and president of Eastman Kodak's health imaging business. Dr. McQuade has broad experience managing basic technology development and the conversion of early-stage research into business growth. He served as a member of the President's Council of Advisors on Science and Technology, the Secretary of Energy Advisory Board, and the Defense Innovation Board, and is a member of the National Academies' National Science, Technology, and Security Roundtable. Dr. McQuade received a Ph.D. in physics from Carnegie Mellon University.

Judith A. Miller

Member

Judith A. Miller is an independent consultant. She served as general counsel to the Department of Defense from 1994 to 1999. Ms. Miller was founder and cochair of, and is now senior advisor to, the ABA Cybersecurity Legal Task Force; she was a member of the Defense Science Board's Task Force on Cyber Deterrence, and she has also co-chaired the Defense Science Board's Task Force on Department of Defense Dependencies on Critical Infrastructure. Ms. Miller was senior vice president, general counsel, and member of the board of directors of the Bechtel Group from 2006 to 2010. Prior to joining the Bechtel Group, she was a partner with Williams & Connolly LLP in Washington, DC. Currently, Ms. Miller serves as a member of the National Academies' Committee on Science, Technology, and Law. She previously chaired the Committee on Section 230 Protections: Can Legal Revisions or Novel Technologies Limit Online Misinformation and Abuse?, and served as a member of the Committee on Scientific Communication and National Security; the Committee on Science, Security, and Prosperity in a Changing World; and the Roundtable on Scientific Communication and National Security. Ms. Miller earned a J.D. from Yale Law School in 1975.

Richard M. Murray

Member

Richard M. Murray is Thomas E. and Doris Everhart professor of control & dynamical systems and bioengineering at the California Institute of Technology. His group researches the application of feedback and control to networked systems, with applications in biology and autonomy. His current projects include novel control-system architectures, biomolecular feedback systems, and networked control systems. Dr. Murray is a member of the National Academy of Engineering and serves on the NAE Awards Committee. Previously, he served as chair of the National Academies' Aerospace Engineering Search Committee, member of the Committee on Defense Research at Historically Black Colleges and Universities and Other Minority Institutions, chair of the Committee on Future Biotechnology Products and Opportunities to Enhance Capabilities of the Biotechnology Regulatory System, and cochair of the Forum on Synthetic Biology. Dr. Murray received a Ph.D. in electrical engineering and computer sciences from University of California, Berkeley, in 1990.