NATIONAL ACADEMIES Sciences Engineering Medicine

Artificial Intelligence for Sustainability: Maximizing Benefits for the United States: A Workshop

Roundtable on Science and Technology for Sustainability
Board on Mathematical Sciences and Analytics
Board on Human-Systems Integration

Wednesday, June 4, 2025
All times are US Eastern Time

The public is invited to register to join virtually.

AGENDA

Workshop Objectives:

- Reviewing AI applications that support sustainability goals, including successful case studies that demonstrate AI-driven sustainability solutions;
- Examining challenges, risks, and considerations of AI, including energy consumption, data limitations, and workforce impacts; and
- Discussing opportunities for cross-sector collaboration, interdisciplinary research, and international cooperation to maximize AI's potential in sustainability efforts.

9:00 am	**Welcome from Roundtable on Science and Technology for Sustainability** Cherry Murray (NAS/NAE), University of Arizona, Roundtable Co-Chair Klaus Tilmes, Senior Policy Advisor and Development Consultant, Roundtable Co-Chair Franklin Carrero-Martínez, National Academies of Sciences, Engineering, and Medicine
9:05 am	**Welcome from the National Academies of Sciences, Engineering, and Medicine** Emanuel Robinson, Board on Human-Systems Integration Brittany Segundo, Board on Mathematical Sciences and Analytics
9:10 am	**Goals for the Workshop** Shefali Mehta, Open Rivers Consulting Associates, Workshop Chair
9:20 am	**Framing Remarks: The Interrelated Benefits of AI and Sustainability** Daron Acemoglu (NAS), Institute Professor of Economics, Massachusetts Institute of Technology

9:50 am **Panel I: Supply Chain for AI – The Inputs to AI**
This panel will consider the actual supply chain for AI, which involves the flow of resources, components, and data required to develop and deploy AI technologies, such as raw materials, hardware, software, energy, training data etc.

Moderator: Anne Roby (NAE), Formerly Linde, PLC
- Erica Fuchs, Kavčić-Moura Professor in Engineering and Public Policy, Carnegie Mellon University
- Andrés Naranjo, Chief Executive Officer, OrangeSpark Industrial AI; and Chief Executive Officer in Residence, Brydon Group
- Larry Megan, Head of Digital, Baldwin Richardson Foods

10:40 am Q&A and Discussion

11:00 am BREAK

11:15 am **Panel II: The Impact of AI on Supply Chains – The Outcomes from AI**
AI can revolutionize the efficiency and sustainability of supply chains by optimizing processes, reducing waste and energy consumption, and improving transparency. Panelists from different sectors may discuss successful case studies relating to AI-driven sustainability solutions that could maximize benefits for the United States.

Moderator: Meghna Tare, The University of Texas at Arlington
- Feng Qiu, Group Leader, Advanced Grid Modeling, Optimization, and Analytics, Argonne National Laboratory
- Elena Naumova, Professor and Chair, Division of Data Sciences, Friedman School of Nutrition Science and Policy, Tufts University
- William Babis, Associate Scientist, Stockholm Environment Institute

12:05 pm Q&A and Discussion

12:25 pm **Dialogue: The Inputs to and Outcomes from AI**
Speakers from Panels I and II may discuss opportunities for cross-sector collaboration and international cooperation to maximize AI's potential in sustainability efforts etc.

Moderator: Meghna Tare, The University of Texas at Arlington

12:40 pm LUNCH

1:30 pm **Panel III: Societal Impact of AI on Employment and Workforce**
Discussions will include the impact of AI on the workforce and employment, including the intersection of the digital divide, AI, and sustainability.

Moderator: José Lobo, Clinical Associate Professor, Arizona State University
- Christine Machovec, Economist, Bureau of Labor Statistics
- Keolu Fox, Assistant Professor, University of California, San Diego
- Shamika Sirimanne, Director, Division on Technology and Logistics, United Nations Conference on Trade and Development

2:20 pm Q&A and Discussion

2:40 pm BREAK

2:55 pm **Panel IV: The Role of Science in Advancing AI Research relating to Sustainability**
Discussions will include opportunities for cross-sector collaboration, interdisciplinary research, and international cooperation to maximize AI's potential in sustainability efforts.

Moderator: Miguel Román, National Aeronautics and Space Administration

- Michael Jacobs, Head of Social Innovation, International Business Machines Corporation
- Eric Horvitz (NAE), Chief Scientific Officer, Microsoft Corporation on behalf of the Association for the Advancement of Artificial Intelligence
- Owen Gaffney, Chief Impact Officer, Nobel Prize Outreach and Amy Luers, Global Lead for Sustainability Science, Microsoft Corporation

3:45 pm Q&A and Discussion

4:05 pm **Synthesis: Future Needs and Opportunities**
All Participants

4:25 pm **Wrap Up**
Shefali Mehta, Open Rivers Consulting Associates and Workshop Chair

4:30 pm Adjourn

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Biographies of Invited Speakers

Welcome from Roundtable on Science and Technology for Sustainability

CHERRY MURRAY (NAS/NAE) (Roundtable Co-Chair) is Professor of Physics and Deputy Director for Research, Biosphere 2 at The University of Arizona. Her current research interests include policy, research, development, education and innovation to sustain human civilization on future Earth. She was dean of Harvard University's School of Engineering and Applied Sciences from 2009 to 2014. Dr. Murray served as the Director of the U.S. Department of Energy's Office of Science from 2015 until 2017. She currently serves as chair of the board of the Okinawa Institute of Science and Technology Graduate University, director of the American Academy of Arts and Sciences, and member of the National Academy of Engineering Council. From 2019-2021, she was elected as co-chair for science and is now treasurer of the Inter Academy Partnership, a partnership of over 140 national and regional science, engineering and medical academies dedicated to providing independent and credible advice to policy makers and to strengthening the role of academies nationally, regionally and globally. In 2021 she was appointed co-chair of the Ten Member Group of the Technology Facilitation Mechanism of the United Nations. Dr. Murray received her B.S. and Ph.D. in Physics from the Massachusetts Institute of Technology.

KLAUS TILMES (Roundtable Co-Chair) is a Senior Policy Adviser and former World Bank Director with over 35 years of international experience in development policy, strategy development at global, country, and sectoral levels. Since leaving the World Bank, Mr. Tilmes has been providing policy advice to international organization, governments, and private sector companies on economic trends, human development, data policies, and technology strategies. At the World Bank, Mr. Tilmes worked with the Office of the President to develop the institution's strategy on emerging technologies. He served as Director of the Trade and Competitiveness Global Practice and as Director for Finance and Private Sector Development. He earned a Master in Public Administration from Harvard University as a McCloy Scholar and a Master in Economics from the University of Mannheim.

FRANKLIN CARRERO-MARTÍNEZ joined the National Academies of Sciences, Engineering, and Medicine in 2018 where he directs the Global Sustainability and Development and the Science and Technology for Sustainability program within the division of Policy and Global Affairs. Prior to this appointment, he was the Acting Deputy Science and Technology Adviser to the Secretary of State. Previously, Dr. Carrero-Martínez held appointments as associate professor at the University of Puerto Rico (UPR), Mayagüez, Adjunct Professor at the UPR Medical Science Campus, and as a visiting scholar at Duke University, Massachusetts Institute of Technology, and Japan's Institute of Genetics. Dr. Carrero-Martínez started his career in science diplomacy and policy as the American Association for the Advancement of Science's Roger Revelle Fellow in Global Stewardship. He served this prestigious fellowship with a joint appointment between the Office of the Science and Technology Adviser to the Secretary of State (STAS) and the National Academy of Sciences. Dr. Carrero-Martínez holds a B.S. in biology with honors from UPR, a Ph.D. in cell and developmental neurobiology, and a certificate in business administration from the University of Illinois at Urbana-Champaign.

Welcome from National Academies of Sciences, Engineering, and Medicine

EMANUEL ROBINSON is the Director of the Board on Human-Systems Integration (BOHSI), which is part of the National Academies of Sciences, Engineering, and Medicine. Dr. Robinson's work and training spans human factors, industrial/organizational and cognitive psychology, and program evaluation. Past human factors projects include developing human factors guidelines for transportation management centers, testing vehicle Human Machine Interface designs and driver comprehension, and studying the use of information for decision making and decision support systems. He has worked with a range of clients including federal, state, private, and philanthropic organizations on topics in transportation, message displays and dissemination, organizational change and leadership, behavioral economics, and safety. Dr. Robinson is regularly invited to speak at conferences and in the media on topics related to decision-making in emergencies, traveler behavior, and safety issues. He received a B.S. from the University of New Orleans in Psychology, and an M.S. and Ph.D. in Experimental Psychology from the Georgia Institute of Technology.

BRITTANY SEGUNDO is the Director of the Committee on Applied and Theoretical Statistics and a program officer with the Board on Mathematical Sciences and Analytics (BMSA) and the Board on Infrastructure and the Constructed Environment (BICE) at the National Academies of Sciences, Engineering, and Medicine. She was a Christine Mirzayan Science and Technology Policy Fellow working with BMSA in 2020 and then joined the National Academies full-time as a Program Officer in 2022. Dr. Segundo's graduate research explored mathematical models that support wildfire response and mitigation. Prior to attending graduate school at Texas A&M University, she worked as a management consultant in the biomedical device industry. She received a B.S. in Industrial and Systems Engineering from North Carolina State University.

Goals for the Workshop

SHEFALI V. MEHTA (Planning Committee Chair) is an economist, statistician and coach who supports individuals and communities in reaching their full potential. She founded and leads Open Rivers Consulting Associates, a science & technology and management consulting firm that builds upon her clients' strengths to develop and implement robust strategy. Serving the community across diverse causes are core to Open Rivers' mission. Dr. Mehta extensively advises and supports multiple non-profits. She most recently served as Deputy Under Secretary of Research, Education and Economics and Acting Chief Scientist of U.S. Department of Agriculture. Before that Dr. Mehta served across a variety of private, public and non-profit sectors including McKinsey, Syngenta, and the National Corn Grower's Soil Health Partnership. Dr. Mehta earned her Ph.D. in Agricultural and Applied Economics and M.S. in Statistics from the University of Minnesota, M.Phil. in Economics from Cambridge University, and a B.A. in Economics from New York University.

Framing Remarks: The Interrelated Benefits of AI and Sustainability

DARON ACEMOGLU (NAS) is an Institute Professor of Economics in the Department of Economics at the Massachusetts Institute of Technology and also affiliated with the National Bureau Economic Research and the Center for Economic Policy Research. In 2024, Dr. Acemoglu received the Sveriges Riksbank Prize in Economic Sciences in memory of Alfred Nobel, jointly with Simon Johnson and James A. Robinson "for studies of how institutions are formed and affect prosperity." Dr. Acemoglu is an elected Fellow of the National Academy of Sciences, the British Academy, the American Philosophical Society, the Turkish Academy of Sciences, the American Academy of Arts and Sciences, the Econometric Society, the European Economic Association, and the Society of Labor Economists. He is the author of six books, including New York Times bestseller *Why Nations Fail: The Origins of Power, Prosperity, and Poverty*

(joint with James A. Robinson) and *Introduction to Modern Economic Growth*. His academic work covers a wide range of areas, including political economy, economic development, economic growth, technological change, inequality, labor economics and economics of networks. Dr. Acemoglu holds Honorary Doctorates from the University of Utrecht, the Bosporus University, University of Athens, Bilkent University, the University of Bath, the Ecole Normale Superieure, Scaly Paris, and the London Business School.

Panel I: Supply Chain for AI – The Inputs to AI

ANNE ROBY (NAE) (Moderator) is a Former Executive Vice President of Linde PLC. Previously, Dr. Roby served as Senior Vice President of Praxair, Inc., responsible for Global Supply Systems, R&D, Global Market Development, Global Operations Excellence, Global Strategic Sales, Global Procurement, Sustainability and Safety, Health and Environment. From 2011 to 2013, Dr. Roby served as President of Praxair Asia, responsible for Praxair's industrial gases business in China, India, South Korea and Thailand as well as the electronics market globally. Dr. Roby is a director Nuvance Health, Twelve, Rinchem, Rogers Corporation, and AMG, N.V. and a Trustee at Villanova University and Northwell Health. Dr. Roby was elected to the U.S. National Academy of Engineering for "developments in oxidation processes and leadership in technological developments, safety, and business growth in global industrial gas companies." Dr. Roby received her Ph.D. in Chemical Engineering from University of Delaware and her B.Ch.E. in Chemical Engineering from Villanova University.

ERICA FUCHS is director of the Critical Technology Initiative at Carnegie Mellon University and a Kavčić-Moura Professor in the Department of Engineering and Public Policy. Dr. Fuchs' research focuses on the development, commercialization, and global manufacturing of emerging technologies, and national policy in that context. Dr. Fuchs catalyzed and served as founding director of the National Network for Critical Technology Assessment, which mobilized academic thought-leaders from more than 13 Tier I research universities across the country to develop a vision for critical technology assessment, including current capabilities (and demonstrations thereof), gaps, and the investment needed to realize that vision. Their year-long work culminated in the report, *Securing America's Future: A Framework for Critical Technology Assessment*. Dr. Fuchs has testified in Congressional hearings in both the House and Senate. She completed her Ph.D. in Engineering Systems, her Master's in Technology Policy, and her Bachelor's in Materials Science and Engineering, all from Massachusetts Institute of Technology, and spent 1999-2000 as a fellow at the United Nations Industrial Development Organization in Beijing, China.

ANDRÉS NARANJO is Chief Executive Officer at OrangeSpark Industrial AI and Chief Executive Officer in Residence at The Brydon Group. Prior to the current appointment, Mr. Naranjo served as Chief Operating Officer at Allie - AI for Manufacturing; where he led product, sales, and deployment of AI in manufacturing plants with a focus on Generative AI to "Talk to the Factory" and Machine Learning to predict holistic production line downtime. Before that Mr. Naranjo was at McKinsey and Company for 13 years, leading Portfolio Strategy efforts in Industrials, and building a Digital and Applied AI team in Tokyo, Japan. He also led the authorship of the Japan Digital Agenda 2030 with the American Chamber of Commerce in Japan. In his early years, Mr. Naranjo started and exited a web applications company. Mr. Naranjo earned a B.A. in Business at CESA (Colegio de Estudios Superiores de Administración), an M.B.A. from the University of Chicago Booth School of Business, and has completed over 10 technical certifications in various AI technologies.

LARRY MEGAN is Head of Digital at Baldwin Richardson Foods (BRF). At BRF, he is responsible for driving a digital transformation that supports the company's rapid business growth, as well as overseeing the organization's entire IT ecosystem. Prior to joining BRF, Dr. Megan spent the previous two years as a principal starting a DoD-funded non-profit called Advanced Manufacturing International (AMI), chartered with enabling Industry 4.0 capability for Small and Medium Manufacturers. Before AMI, he

had a lengthy career at Praxair/Linde, a Fortune 100 chemical manufacturer. His roles included Corporate Fellow, Director of Productivity for Research and Development, and Global Head of Digital Innovation. He is currently serving as a charter member of the Smart Manufacturing Executive Council, a national Industry 4.0 policy and advocacy organization sponsored by the Society of Manufacturing Engineers (SME) and Collaborative Ecosystems Smart Manufacturing Innovation Institute (CESMII). He is also on the advisory boards for the University at Buffalo (UB) Industrial Engineering Department and the UB Graduate School of Education Teacher Residency Program.

Panel II: The Impact of AI on Supply Chains – The Outcomes from AI

MEGHNA TARE (Moderator) is the Chief Sustainability Office of University of Texas Arlington (UTA), working collaboratively to foster partnerships among academic, research, and operational departments. She has a successful track record of launching and managing projects, developing strategy, managing operations, policy and program implementation. She has expertise in the Sustainable Development Goals, public policy, Corporate Social Responsibility, climate change, equitable food systems, transportation, conservation, place-based education, and social impact. Ms. Tare is the Founder and Director of Regional Center of Expertise for Education in Sustainable Development (RCE North Texas), a program of the United Nations University, and the North Texas Food Policy Alliance. She serves and represent UTA on several Advisory Boards including the National Academy of Science Board on Higher Education and Workforce Development, Association for the Advancement of Sustainability in Higher Education (AASHE), and on the Board of Directors for International Council for Local Environmental Initiative (ICLEI USA). Ms. Tare graduated with an MBA in Sustainable Management, M.S. in Environmental Science, and M.S. in Chemistry.

FENG QIU is a Principal Computational Scientist and a Section Leader at Argonne National Laboratory (ANL). He leads the Advanced Grid Modeling, Optimization and Analytics group in the Center for Energy, Environmental, and Economic Systems Analysis (CEEESA) in the Energy Systems and Infrastructure Assessment Division. He received his Ph.D. from the School of Industrial and Systems Engineering at Georgia Institute of Technology with a concentration on Optimization and joined Argonne in March of 2013. Dr. Qiu is the PI and Co-PI of multiple projects funded by Argonne Laboratory Directed Research and Development (LDRD), U.S. Department of Energy's (DOE) Office of Electricity (OE) and Office of Energy Efficiency and Renewable Energy, and the National Science Foundation. He serves as the lab Point of Contact for DOE OE Advanced Grid Modeling program at ANL. He is also an Institute Fellow at Northwestern University in the Northwestern Argonne Institute of Science and Engineering, and an Affiliated Associate Professor at the Electric and Computer Engineering Department of Iowa State University. Dr. Qiu's research interest includes power system modeling, optimization, and simulation, machine learning, grid resilience, renewable integration, and electricity markets.

ELENA NAUMOVA is the Chair of the Division of Nutrition Data Science, as well as a Professor at the Friedman School, Tufts University. Her primary expertise is in the development of analytical tools for spatiotemporal and longitudinal data analysis applied to disease surveillance, exposure assessment, and studies of growth; creation and application of statistical tools to evaluate the influence of an extreme and/or intermediate event on spatial and temporal patterns. Dr. Naumova participates in international projects collaborating with epidemiologists, immunologists, and public health professionals in India, Kenya, Ghana, Ecuador, Japan, Canada, Russia, and the UK. She applies theoretical work to studies of infections sensitive to climate variations and extreme weather events and facilitates the utilization of novel data sources, including remote sensing data and satellite imagery for better understanding the nature and etiology of diseases on local and global scales. As a Director of the Tufts Initiative for Forecasting and Modeling of Infectious Diseases (InForMID), Dr. Naumova has set up workshops and training programs to support field research and analytical assessment of research data, advised over 100 Ph.D./M.S./M.P.H. students at Tufts, and co-directed the Tufts Institute of the Environment.

WILLIAM BABIS is an Associate Scientist at the Stockholm Environment Institute (SEI) US. Mr. Babis is developing SEI's WindHub La Guajira mapping portal to inform benefit-sharing efforts for Indigenous communities from renewable energy in Colombia. His research interests largely revolve around the intersectionality of land use and climate change. Previously at SEI, he built the AI-Policy Processor tool, which leverages Large Language Models like ChatGPT to help users understand renewable energy policies with targeted queries. This tool has been used in particular to augment SEI's NDC-SDG Connections project to better understand how aligned national climate ambitions are with UN Sustainable Development Goals. He has also worked with the Equitable Transitions team to build geospatial analyses and visualizations of proposed oil drilling in ecologically and culturally sensitive areas of sub-Saharan Africa. Before joining SEI, Mr. Babis co-founded a machine learning startup and was a climate data analyst at the National Aeronautics and Space Administration and Resources for the Future. He has an M.S. in Environmental Economics & Public Policy from Tufts University's Fletcher School of Law & Diplomacy as well as a B.S. in Computer Science from Boston College.

Panel III: Societal Impact of AI on Employment and Workforce

JOSÉ LOBO (Planning Committee Member and Moderator) is on the faculty of the School of Sustainability, College of Global Futures, Arizona State University. Trained in physics, applied mathematics and urban economics, Dr. Lobo's research spans the role of cities and urbanization in driving socioeconomic development, and the determinants of technological change. In his research work he has collaborated with social scientists, physicists, biologists, engineers and applied mathematicians, and with colleagues from the Global North and the Global South (including China, India, South Africa, Mexico and Brazil). In collaboration with organizations representing informal settlements ("slums") in Africa, India and Latin America, Dr. Lobo has studied the role of informal settlements in urban development and is currently examining how the experience of the urban poor building resilient urban communities can inform the design of climate change solutions. At the School of Sustainability Dr. Lobo teaches undergraduate and graduate courses on mathematics, sustainable urban development, and energy systems transitions. As a member of the University's General Studies Council, he has been involved in the design and implementation of the new undergraduate general studies curriculum. Dr. Lobo received his Ph.D. in Regional Science from Cornell University.

CHRISTINE MACHOVEC is an economist with the Employment Projections (EP) program at the U.S. Bureau of Labor Statistics (BLS). The EP program develops information about the labor market for the nation for 10 years in the future. As a member of the Projections Research and Analysis (PRA) branch in EP for more than five years, Ms. Machovec has completed detailed research on over 90 occupation and industry units. Ms. Machovec's recent publications include Incorporating AI impacts in BLS employment projections: occupational case studies and blog posts summarizing Employment Projections data and highlighting women in STEM occupations. Ms. Machovec received a M.A. in Applied Economics and a B.S. in Economics cum laude at American University.

KEOLU FOX, Kānaka Maoli (Native Hawaiian) is an assistant professor at University of California, San Diego, affiliated with the Department of Anthropology, the Global Health Program, the Halıcıoğlu Data Science Institute, the Climate Action Lab, and the Indigenous Futures Lab. He holds a Ph.D. in Genome Sciences from the University of Washington, Seattle (2016). Dr. Fox's multi-disciplinary research interests include genome sequencing, genome engineering, computational biology, evolutionary genetics, paleogenetics, and Indigenizing biomedical research. His primary research focuses on questions of functionalizing genomics, testing theories of natural selection by editing genes and determining the functions of mutations. Dr. Fox has published numerous articles on human genetics, biomedicine, ancient genomics, and Indigenous data sovereignty, most recently in the *New England Journal of Medicine*, *Nature*, and the *Proceedings of the Royal Society B*. Dr. Fox is a recipient of grants from numerous organizations including the National Institutes of Health, the National Science Foundation, National

Geographic, the American Association for Physical Anthropology, Emerson Collective, the Social Science Research Council and the Massachusetts Institute of Technology, SOLVE Initiative. Dr. Fox received a Ph.D. in Genome Science from University of Washington School of Medicine.

SHAMIKA N. SIRIMANNE has been leading science, technology and innovation work of UNCTAD (UN Trade and Development) and ESCAP (UN regional commission for Asia and the Pacific) since 2012. As the Director of technology at UNCTAD she has led the work of the UN Commission on Science and Technology for Development, the focal point of the UN on STI policy. As the Director of ICT and disaster risk reduction at UNESCAP, she spearheaded regional cooperation programmes, including initiatives for providing seamless broadband connectivity, and early warning for droughts. She has been guiding major publications on technology for development, including the *Digital Economy Report* and the *Technology and Innovation Report* of UNCTAD. Currently she serves as the senior advisor to UNCTAD Secretary General. Prior to that, Ms. Sirimanne has led macroeconomic policy work at ESCAP and the UN Economic Commission for Africa (ECA) and the respective flagship publications, *Economic and Social Survey of Asia and the Pacific* and the *Economic Report on Africa*. She has also worked for the UN Economic Commission for Africa (ECA), Canadian Department of Finance and the World Bank. Ms. Sirimanne holds a Ph.D. in Economics.

Panel IV: The Role of Science in Advancing AI Research relating to Sustainability

MIGUEL ROMÁN (Moderator) is the Deputy Director for Atmospheres in the Earth Sciences Division at National Aeronautics and Space Administration's (NASA's) Goddard Space Flight Center, an organization dedicated to advancing our understanding of the Earth's atmospheric processes, including mesoscale meteorology, precipitation, atmospheric chemistry, aerosols and clouds, radiative transfer, and related climate studies. Dr. Román has held various science leadership roles across the federal government, industry, and non-profit organizations. A recognized authority in satellite remote sensing, disaster risk reduction, and climate sustainability, Dr. Román has been instrumental in advancing interdisciplinary research and data-driven methodologies at the energy-climate-sustainability nexus. His extensive body of work includes over 60 technical publications, Dr. Román's exceptional contributions to science and engineering have earned him prestigious accolades, including the inaugural 2023 Society of Hispanic Professional Engineers Award for Climate Sustainability and the 2016 Presidential Early Career Award for Scientists and Engineers bestowed by President Barack Obama. Dr. Román earned a B.S. in Electrical Engineering from the University of Puerto Rico at Mayagüez, a M.Eng. in Systems Engineering from Cornell University, and a Ph.D. in Remote Sensing from Boston University.

MICHAEL JACOBS is the Head of Social Innovation at IBM. He is responsible for planning and managing cross-IBM efforts to develop and deploy technology for community impact. Previously, he served as the Superintendent for Capital Projects at MTA New York City Transit and as a Booz Allen Hamilton consultant – both roles in which he focused on technology systems development and deployment for the public sector. Mr. Jacobs holds a dual Master of Public Administration from Columbia University and The London School of Economics and Political Science and a Bachelor of Arts in International Affairs from The George Washington University. Mr. Jacobs lives in New York's Hudson Valley with his wife Abby and kids Tom and Sally. Their shared love for the outdoors and active pursuits in it drive his passion for protecting the natural world.

ERIC HORVITZ (NAE) serves as Microsoft's Chief Scientific Officer. In this role, Dr. Horvitz provides leadership and perspectives on advances and trends on scientific matters, and on issues and opportunities rising at the intersection of technology, people, and society. He has pursued principles and applications of AI with contributions in machine learning, perception, natural language understanding, and decision making. His research centers on challenges with uses of AI amidst the complexities of the open world, including uses of probabilistic and decision-theoretic representations for reasoning and action, models of

bounded rationality, and human-AI complementarity and coordination. His efforts and collaborations have led to fielded systems in healthcare, transportation, ecommerce, operating systems, and aerospace. Dr. Horvitz received the Feigenbaum Prize and the Allen Newell Prize for contributions to AI, and the CHI Academy honor for his work at the intersection of AI and human-computer interaction. Dr. Horvitz has served as president of the Association for the Advancement of Artificial Intelligence and as a commissioner for the National Security Commission on AI where he chaired the line of effort on ethical and responsible AI. He received Ph.D. and M.D. degrees at Stanford University.

OWEN GAFFNEY is chief impact officer at Nobel Prize Outreach and co-founder of Earth4All and the Exponential Roadmap Initiative. Mr. Gaffney is an Anthropocene analyst, communicator, writer, editor and scholar. He was formerly at the Stockholm Resilience Centre and Potsdam Institute for Climate Impact Research. His work focuses on the intersection between science and policy. He is particularly interested in the artificial intelligence revolution and implications for global sustainability.

AMY LUERS is the senior global director for sustainability science and innovation at Microsoft. In this role she leads Microsoft's artificial intelligence and sustainability work, and informs the company's sustainability strategies, investments, and policies. Previously, she served as executive director of Future Earth, assistant director for climate resilience and information at the White House Office of Science and Technology Policy during the Obama administration, director of climate at the Skoll Global Threats Fund, and senior environment manager at Google. Dr. Luers spent the first decade of her career working in Latin America, where she co-founded Agua Para La Vida, a nonprofit organization that works with rural communities to enhance access to potable water. Currently, she serves on the advisory board of Veolia Institute, the Stanford Woods Institute for the Environment, and the Gund Institute for Environment. Dr. Luers is a member of the Council on Foreign Relations. She has a Ph.D. in environmental science and an M.A. in international policy studies from Stanford University, B.S. and M.S. degrees in environmental systems engineering from Humboldt State University, and a B.A. in philosophy from Middlebury College.