

Performance Metrics for R&D Organizations

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BIOGRAPHIES

Marc S. Allen is Assistant Associate Administrator for Strategic and International Planning, Office of Space Science (OSS) at the National Aeronautics and Space Administration, where he is responsible for management of OSS strategic planning process and development of performance plans and reports for the Government Performance and Results Act of 1993 (GPRA). Before coming to NASA in 1997, he was Director of the National Research Council's Space Studies Board, where he managed staff support to the Board and its ten committees and task groups. In consultation with Board chair, Allen defined and initiated principal Board activities. Responsible for all program, budget, and personnel aspects of Board and committee operations, from project and proposal development to final product quality assurance. Served as key staff interface between the Board and federal agencies, executive departments, and congressional offices. Lead staff role in Board's international advisory program development. Prior to going to the National Research Council he held various science and technology management positions at NASA's Langley Research Center and Goddard Space Flight Center, and at the Computer Sciences Corporation. Allen received his Ph.D. in Astronomy from the University of Michigan and his B.A. in Physics and Astronomy from Carleton College (Cum Laude and Distinction in Department. He has also served as assistant astronomer at the Institute for Astronomy, University of Hawaii Assistant Astronomer, where he conducted research in ultraviolet solar spectroscopy, including design and planning of research program, development of analysis software, data reduction, modeling, and publication of results, as well as research in spectroscopy and interpretation of hot peculiar stars. Allen is a member of the American Astronomical Society, the American Geophysical Union, and Sigma Xi.

Michael G. Bolton is Managing Director of Pennsylvania Early Stage Partners. Bolton has also been part of the Safeguard Scientifics Venture Fund Management Team, which he joined after serving at Lehigh University in various executive positions related to technology transfer, entrepreneurial assistance, public relations and development. As the founding Chief Executive of the Ben Franklin Technology Center at Lehigh and co-founder of the NEPA Venture Funds, Bolton has been a very active participant in Pennsylvania's venture community for many years. Bolton has both a B.A. and an MBA from Lehigh University. He currently serves on the Board of Directors of Competitive Technologies, Inc., The Discovery Center Science Museum and several of the portfolio companies associated with Pennsylvania Early Stage Partners. In addition, Mr. Bolton serves on the Advisory Board for

the Wharton School's Center for Entrepreneurship at the University of Pennsylvania. Safeguard Scientifics is a unique partnership of entrepreneurial companies focused on information technology markets. Safeguard has interests in 34 partnership companies including eight venture funds in excess of \$1 billion. The venture funds have made investments in over 100 partnership companies.

Barry Bozeman is Professor of Public Policy in the School of Public Policy at Georgia Tech. His distinguished appointments have included Director of Georgia Tech's School of Public Policy and Director of the Technology and Information Policy Program at the Maxwell School of Public Affairs and L.C. Smith College of Engineering. Bozeman has served on the faculties of George Tech, the University of Michigan, Syracuse University, University of Copenhagen, Virginia Polytechnic Institute and State University, and the University of Missouri-Columbia. He received his doctorate in political science from the Ohio State University and his B.A. and M.A. from Florida Atlantic University. The author of well over a hundred invited presentations and refereed publications, Bozeman's books include *Limited by Design: R&D Laboratories in the U.S. Innovation System* (Columbia University Press, 1998, with Michael Crow), and *Strategic Management of Industrial R&D: Interdisciplinary Perspectives* (Lexington Publishing, 1984; co-edited with M.Crow and A. Link). He is currently at work on two new books, *Public Value: Insufficiency of the Market Failure Model*, and *Evaluating Scientific Knowledge*.

Altyn Clark is a Research Scientist for The Performance Center at the Oregon State System of Higher Education – in partnership with Portland State University and Oregon State University. His clients include the U.S. Postal Service, the U.S. Navy, the U.S. Department of Energy, National Grocers Co., Ltd., and the Division of Research and Graduate Studies at Virginia Polytechnic Institute and State University. Clark identified performance measurement and organizational improvement as his area of concentration early in his career, as evidenced by his work as an undergraduate student at Virginia Tech with General Electric, Baxter Laboratories, Philip Morris, and Volvo-White. He holds the M.S. and Ph.D. in Industrial and Systems Engineering from Virginia tech, and is a licensed professional engineer in Virginia as well as a long-standing member of the Institute of Industrial Engineers.

Mike Comella: After graduating from State University of New York at Cortland with a Bachelors of Science degree in Physics, Mike Comella served in the US Air Force as an officer and aircrew navigator. Upon separation from the military he became a commercial pilot and aircraft flight instructor. Comella later worked as a technical service representative for Haynes International, Inc., manufacturers of high performance nickel and cobalt alloys. He relocated to Ithaca, NY in 1994 where he began graduate studies in biological engineering at Cornell University and joined Cornell Research Foundation, Inc. as a technology licensing specialist.

Margaret Graham is a founding director of the Winthrop Group, Inc. a company established to help companies, and other organizations, document and interpret their experience for future use. Her career has focused on the history and practice of technology-based innovation. To achieve a balanced understanding of the problems she studies; she has worked in both industry and the academy, alternating her time between periods of teaching and writing, consulting and practice. Her scholarly work has been based on in-

depth archival study, on multi-year fieldwork, and on long-term interaction with companies. Her publications include *RCA and the VideoDisc: The Business of Research*, and *R&D for Industry: A Century of Technical Innovation at Alcoa*, both published with Cambridge University Press. She has directed studies for National Research Council committees in the United States and has sponsored one, and been a member of two, research teams on National Science Foundation grants. Her current work involves helping technology-based organizations to use their corporate memory to inform and shape their strategy formulation, and to improve their knowledge management practices. She is presently writing a book on Corning and the Craft of Innovation. Dr. Graham holds a Ph.D in history from Harvard University and an MBA from the Harvard Graduate School of Business Administration. Her faculty appointments include the Harvard Business School, Boston University School of Management (1978-93), and the Institute for Research on Learning in Palo Alto, California (1990-91). From 1991-94 she served on the senior staff of the Xerox Palo Alto Research Center, first as Manager of Research Operations and Organizational Learning, and then as Manager of Research Information and Infrastructure. Since 1990 she has also served on the board of directors of The Pioneer Group, a global family of mutual funds. In September she will join the McGill University Management School as a Visiting Professor.

J. Thomas Hennessey is a career professional applying more than twenty years of progressively responsible leadership and management experience to research, administration, and the classroom. He is currently developing and implementing educational and informational programs for George Mason University, the US Congress, and a unique leadership development program for future chief executive officers of Northern Virginia's leading corporations. He is also serving as Acting Executive Director of the Northern Virginia Business Roundtable while teaching undergraduate and graduate courses in organization theory, government and politics, personnel, and public administration. His recent publications include "Reinventing Government: Is Leadership the Answer?" *Public Administration Review*, November/December 1998, and "State and Local Opportunities in Environmental Policy: Cleaning up the Potomac and Anacostia Rivers," *Public Works Management and Policy*, October, 1997. Hennessey holds the Ph.D. from George Mason University.

Sylvia K. Kraemer is the Director of Policy Development in the Office of Policy and Plans at the National Aeronautics and Space Administration (NASA). After receiving her doctorate in intellectual history from The Johns Hopkins University, she taught American and European cultural history at Vassar College, Southern Methodist University, and the University of Maine. In 1983 she was appointed Chief Historian for NASA. During the next seven years she developed her interests in the history of science and technology and science and technology policy. In 1990 she was appointed to the Senior Executive Service, in which capacity she has excelled in meeting a variety of challenging NASA management assignments. She currently serves as principal policy coordinator in the Office of Policy and Plans and maintains an active program of policy research, which is currently focussed on evaluating research and development. Her many publications include *Milestones of Space*, edited with Martin Collins (The Smithsonian Institution and Hugh Lauter Levin and Assoc., Inc., with Macmillan, 1994); (under the name Sylvia D. Fries:) *NASA Engineers and the Age of Apollo* (Washington, D.C.: National Aeronautics and Space Administration, 1992), and "2001 to 1994: Political Environment and the Design of NASA's Space Station System," *Technology and Culture*, Vol. 29, No. 3 (July

1988), winner of the James Madison Prize for 1989 awarded by the Society for History in the Federal Government.

Charles F. Larson is Executive Director of the Industrial Research Institute, Inc. (IRI), a Washington, D.C.-based association of 290 major industrial companies concerned with enhancing the effectiveness of technological innovation in industry. He is a founder and past chair of the Pressure Vessels & Piping Division of the American Society of Mechanical Engineers, a past chair of Section P, Industrial Science, and a Fellow of AAAS, and was chairman of the 43rd National Conference on Advancement of Research (in 1989). Mr. Larson also co-chaired a joint ACS-IRI Symposium on Innovation and U. S. Research in 1979, and co-edited a book published in 1980 by ACS under the same title. He currently serves on the Joint High Level Advisory Panel for the U.S.-Japan S&T Agreement, and as a reviewer for NSF publications, proposals, and programs. Mr. Larson received his B.S. in Mechanical Engineering from Purdue University and his MBA summa cum laude from Fairleigh Dickinson University. He serves on the Purdue Mechanical Engineering Advisory Board and is a registered professional engineer in the State of New Jersey.

Allen Lomax is Senior Evaluator with the U.S. General Accounting Office (GAO) and a major contributor to GAO's report entitled "MANAGING FOR RESULTS: An Agenda To Improve the Usefulness of Agencies' Annual Performance Plans", as well as a major contributor to GAO's "Evaluator's Guide to Assessing Agency Annual Performance Plans". Additionally, he has participated in GAO studies of the U.S. Department of Transportation's university research activities and the U.S. Coast Guard's R&D Program. Mr. Lomax holds a master's degree in public administration from George Mason University and his undergraduate degree from Northeastern University, where he majored in political science and public administration.

Lisa Oakley is Senior Staff Economist for the MITRE Corporation's Economic Decision and Analysis Center. She previously worked in the Department of Defense as a labor economist for the civilian labor force. Dr. Oakley earned her doctorate from George Mason University and is also a candidate for the doctorate at the University of California at Santa Barbara. She received her undergraduate degree from the University of Pennsylvania. Her publications include "The Politics of Infrastructure," *Journal of Law and Economics*, (Spring, 1995; with Mark Crain) and the U.S. Library of Congress. "Citizen Initiative Proposals Appearing on State Ballots from 1976 to 1992," (Congressional Research Service, February 15, 1995; with Thomas Neale). Dr. Oakley works extensively with information technology investment analysis, for which performance measurement is culturally significant factor. Her most significant accomplishment over the last year is her 6 month old daughter.

Kenneth D. Smith is Project Manager and Executive Consultant in The Performance Center, as well as Managing principal of the firm Strategic Directions, L.L.C., which assists public and private organizations to achieve performance, financial, and policy results. His clients have included the U.S. Navy, the U.S. Geological Survey, the Virginia Housing Development Authority, the Virginia Department of Information Technology, the Virginia Council on Information Management and the Center for Innovative Technology. His previous U.S. Government service includes Deputy Administrator for Management and Policy Support at the Rural Electrification Administration, and Assistant Deputy

Administrator for the Farmers Home Administration. He has completed the Program for Senior Government Managers at Harvard University.

Richard N. Spivack is Economist for the Advanced Technology Program at the National Institute for Standards and Technology. He assisted in establishing the long term program evaluation plan of the ATP Economic Assessment Office, which involved creating a contractual relationship with the National Bureau of Economic Research. The result has been the development of over 20 studies by some of this country's (and the world's) leading economists and technology policy specialists examining both the role of the ATP in technology development as well as the impact of the ATP upon the US economy. Mr. Spivack also served as a Program Manager for one of the ATP focused programs, Information Infrastructure for Healthcare.

Deborah D. Stine is Associate Director of the Committee on Science, Engineering, and Public Policy (COSEPUP) of the National Academy of > Sciences, National Academy of Engineering, and Institute of Medicine. She is the study director for COSEPUP's recent report entitled "Evaluating Federal Research Programs: Research and the Government Performance and Results Act." Dr. Stine has been working on various projects throughout the academy complex since 1989. She received an award for her first study for COSEPUP on policy implications of greenhouse warming and another for her work in risk assessment and management. Topics of other studies for COSEPUP include graduate education, NSF's Science & Technology Studies, and International Benchmarking of Mathematics, Materials Science and Engineering, and Immunology. Dr. Stine holds a bachelor's degree in mechanical and environmental engineering from the University of California, Irvine; a master's degree in business administration; and a PhD in public administration, specializing in policy analysis, from American University. Before coming to the academy, she was a mathematician for the Air Force, an air-pollution engineer for the State of Texas, and an air-issues manager for the Chemical Manufacturers Association.

Roger R. Stough is the NOVA Endowed Chair in Public Policy in The Institute of Public Policy at George Mason University. He also serves as the Associate Director of the Institute and as the Director of the Regional Enterprise Research and Development Center (RERDC). His research is focused on regional economic development planning and policy, and transportation policy with particular emphasis on the role of institutions and policy in the deployment of new transport technology. He served as chair of the urban and regional studies faculty while in the School of Public and Environmental Affairs at Indiana University in the 1980s. Professor Stough received his undergraduate degree in international trade and economics, his master's degree in economic geography from the University of South Carolina, and his Ph.D. from The Johns Hopkins University in geography and environmental engineering. He currently directs the National Center for Intelligent Transportation Deployment Research as well as a diverse portfolio of sponsored projects more focused on regional economic development.

Caroline S. Wagner is Special Assistant to the Director of the Science & Technology Policy Institute (formerly the Critical Technologies Institute) and Senior Policy Analyst at the RAND Corporation. Since joining RAND, Ms. Wagner has published major reports in the areas of international science and technology, metrics for science, and critical technologies identification. Most recently, Caroline co-authored "New Forces at Work: Industry Views Critical Technologies," (RAND 1998). Prior to joining RAND in 1993, Caroline was a

professional staff member for the U.S. Congress House of Representatives Committee on Science, Space, and Technology. She joined the congressional staff after eight years as an economic analyst with the Central Intelligence Agency Division on Technology and Innovation where she focused on technology development activities in advanced industrialized countries. Caroline has served on the staff of the Congressional Office of Technology Assessment, and as a consultant to the National Science Foundation, the Business/Higher Education Forum, and other public and private sector organizations on science and technology policy issues. She holds a Master of Arts Degree from George Washington University in Science, Technology, and Public Policy and a BA in philosophy from Trinity College.

Fred H. Williamson is Assistant Secretary of Technology for the Commonwealth of Virginia, assisting Virginia's first Secretary of Technology, Donald W. Upson, in developing policies and strategies to foster technology-based industries and institutions across the Commonwealth. He also serves as Executive Director of the Governor's Commission on Information Technology, a blue ribbon panel, composed primarily of CEOs and other senior executives of Virginia's leading information technology and telecommunications companies, which was appointed to make policy recommendations to the Governor on issues central to the continued growth of critical technology sectors and their expansion throughout the state. Williamson also assists the Secretary in the oversight and direction of Virginia's Center for Innovative Technology. Prior to his current position, Williamson worked since 1983 for the Eastman Kodak Company, serving in its Washington, DC office in long-term planning and product development and technical marketing and business development assignments, and as Director of Imaging Technology Policy with Eastman Kodak Company. In that position his specific policy activities included patent law revision, privacy, encryption, intellectual property protection in digital environments, the telecommunications infrastructure and adequate funding for science and technology programs. Prior to joining Kodak, Mr. Williamson served with the United States Air Force. His military service included overseas assignments in Vietnam and Japan and stateside assignments at the National Security Agency, the US Air Force Academy, where he was Assistant Professor of History and Lecturer in Defense Policy, and the Pentagon, where he had successive postings to Headquarters, USAF, the Office of the Secretary of Defense and the Defense Intelligence Agency. His military decorations include the Vietnam Service Medal, the Bronze Star Medal and the Legion of Merit. Mr. Williamson holds B.A. and M.A. degrees from the University of Maryland at College Park; he is also a graduate of the Air War College and the Kennedy School Program for Senior Managers in Government.

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