

Capitalizing on Science, Technology, and Innovation: An Assessment of the Small Business Innovation Research Program

Committee

Jacques S. Gansler

Chair

Jacques Gansler, former Under Secretary of Defense for Acquisition, Technology, and Logistics, is the first to hold the University of Maryland's Roger C. Lipitz Chair in Public Policy and Private Enterprise. As the third ranking civilian at the Pentagon from 1997 to 2001, Dr. Gansler was responsible for all research and development activities, acquisition reform, logistics, advanced technology, environmental security, defense industry, and other programs. Before joining the Clinton Administration, Dr. Gansler held a variety of positions in government and the private sector, including those of Deputy Assistant Secretary of Defense (Material Acquisition), Assistant Director of Defense Research and Engineering (Electronics), Vice President of ITT, and engineering and management positions with Singer and Raytheon Corporations.

Throughout his career, Dr. Gansler has written, published, and taught on subjects related to his work. He is the author of *Defense Conversion: Transforming the Arsenal of Democracy*, MIT Press, 1995; *Affording Defense*, MIT Press, 1989, and *The Defense Industry*, MIT Press, 1990. He has published numerous articles in *Foreign Affairs*, *Harvard Business Review*, *International Security*, *Public Affairs*, and other journals as well as newspapers and through the proceedings of Congressional hearings.

David B. Audretsch

Member

David B. Audretsch is the Ameritech Chair of Economic Development and the Director of the Institute for Development Strategies at Indiana University. He is also a Research Fellow of the Centre for Economic Policy Research (London). He was at the Wissenschaftszentrum Berlin fuer Sozialforschung in Berlin, Germany, a government funded research think tank, between 1984 and 1997, serving as its Acting Director from 1989 to 1991. In 1991, he became a Research Professor.

Dr. Audretsch's research has focused on the links between entrepreneurship, government policy, innovation, economic development, and global competitiveness. He has consulted with the World Bank, National Academy of Sciences, U.S. State Department, United States Federal Trade Commission, General Accounting Office and International Trade Commission as well as the United Nations, the Commission of the European Union, the European Parliament, the OECD, numerous private corporations, state governments, and a number of European Governments. He is a member of the Advisory Board to a number of international research and policy institutes, including the Zentrum fuer Europaeisch Wirtschaftsforschung (ZEW, Centre for Economic Research), Mannheim, Germany and the Hamburgisches Welt-Wirtschafts-Archiv (HWWA, Hamburg Institute of International Economics), and the American Institute for Contemporary German Studies (AICGS), Washington, D.C.

His research has been published in over one hundred scholarly articles in the leading academic journals. He has published twenty-five books including, *Innovation and Industry Evolution*, with MIT Press. He is founder and editor of the premier journal on small business and economic development, *Small Business Economics: An International Journal*. He was awarded the 2001 International Award for Entrepreneurship and Small Business Research by the Swedish Foundation for Small Business Research.

Gene Banucci

Member

Gene Banucci, a founder and Executive Chairman of Advanced Technology Materials, Inc., has served as Chief Executive Officer, Chairman of the Board, and as Director since 1986. At its inception, ATMI focused its core expertise on materials for Chemical Vapor Deposition (CVD) technology and has since developed a unique portfolio of leading-edge materials technologies for innovative packaging, productive delivery systems, accurate solid-state sensors, low-impact environmental equipment, and engineered services that are combined into materials solutions.

Before co-founding ATMI in 1986, Gene Banucci served as a Director for American Cyanamid's Chemical Research Division, where he directed more than 400 scientists and engineers in new product research and development for this \$1 billion unit. He also created and directed Cyanamid's Discovery Research Department where he managed the creation of new specialty chemical and materials technologies, leading to new business ventures.

Dr. Banucci holds 21 issued U.S. patents and is an author of numerous published scientific articles. He is a founding member of the Connecticut Technology Council, a member of the Board of Directors of Precision Combustion, Inc., and a member of the Board of Trustees of Beloit College. He received his Ph.D. in Organic Chemistry from Wayne State University, and his B.A. in Chemistry from Beloit College.

Jon Baron

Member

Jon Baron is the Director of the Coalition for Evidence-Based Policy, a project launched under the sponsorship of the Council for Excellence in Government in September 2001 to promote government policymaking based on rigorous evidence of program effectiveness.

Before joining the Council, he served as the Executive Director of the Presidential Commission on Offsets in International Trade (2000-2001). In that position, he developed and built consensus for a major Commission report to Congress that was approved by the Director of the Office of Management and Budget, with the concurrence of all Commission members.

From 1995-2000, he was the Program Manager for the Defense Department's Small Business Innovation Research (SBIR) program, which provides over a half-billion dollars each year to small technology companies to develop new commercial/military technologies. In that position, he initiated and led major program reforms that greatly increased the effectiveness of the program in spawning successful new companies and technologies. The reforms received the Vice President's Hammer Award for reinventing government and were recognized by Harvard University's Innovations Awards Program as one of the top government innovations in the United States.

From May 1993 to May 1994, he was a special assistant for dual-use technology policy in the Office of the Secretary of Defense. From 1989-1994, he served as counsel to the House of Representatives Committee on Small Business, where among other activities he initiated, led, and worked successfully to secure enactment of legislation establishing the federal Small Business Technology Transfer (STTR) program. The program funds cooperative R&D projects involving universities and small technology companies, and was recently reauthorized by Congress and expanded to \$130 million per year.

Mr. Baron holds a law degree from Yale Law School, a master's degree in public affairs from Princeton University, and a Bachelor of Arts degree in economics from Rice University.

Michael G. Borrus

Member

Michael Borrus is the founding general partner of X/Seed Capital, a seed-focused early stage venture fund focused on breakthrough innovation. Prior to founding X/Seed, he was an Executive in Residence (EIR) at Mohr Davidow Ventures (MDV) in Silicon Valley.

Michael left his faculty position at UC Berkeley in 1999 to do a financial services start-up for the 5 years prior to joining MDV. He was Managing Director of the start-up, The Petkevich Group (TPG), a merchant bank providing financial advisory services and investment capital to growth companies in life sciences and technology. He led the technology banking group at Petkevich & Partners, TPG's broker-dealer subsidiary, executing a variety of financial transactions from M&A and capital raising to spinouts and bankruptcy reorganization.

Before TPG, Michael was Adjunct Professor in UC Berkeley's College of Engineering, Co-founder and Co-Director of the Berkeley Roundtable on the International Economy (BRIE) at the University of California, Berkeley, and a partner in Industry and Trade Strategies, a business consultancy. Much of his academic and consulting work has focused on how business models need to adjust to successfully commercialize new technologies, to exploit new market opportunities or to adapt to new competitors.

He is the author of three books and over 70 chapters, articles and monographs on a variety of topics including management of technology, high technology competition, international trade and investment, and financial strategies for technology companies. He is a frequent speaker before corporate and public audiences, and has appeared in numerous media outlets from CNN and NPR to Business Week and the New York Times.

Industry Associations: Michael serves on the Advisory Committee to the U.S. Government's Advanced Technology Program (ATP), several National Academy of Science/National Research Council Steering Committees, the Board of Trustees of the National Center for Women and Information Technology, and is a Director of Geniisis Agents (a privately held company).

Education: Michael is an honors graduate of Harvard Law School, the University of California, Berkeley and Princeton University. He is a member of the California State Bar.

Gail H. Cassell

Member

Gail Cassell is currently Vice President for Scientific Affairs and Distinguished Lilly Research Scholar for Infectious Diseases at Eli Lilly and Company. She was previously the Charles H. McCauley Professor and Chairman of the Department of Microbiology at the University of Alabama Schools of Medicine and Dentistry at Birmingham, a department that ranked first in research funding from the National Institutes of Health under her leadership.

She is a current member of the Director's Advisory Committee of the National Centers for Disease Control and Prevention. She is a past President of the American Society for Microbiology, a former member of the National Institutes of Health Director's Advisory Committee, and a former member of the Advisory Council of the National Institute of Allergy and Infectious Diseases of NIH. Dr. Cassell served eight years on the Bacteriology-Myecology 2 Study Section and as Chair for 3 years. She also was previously chair of the Board of Scientific Councilors of the Center for Infectious Diseases, Centers for Disease Control.

Dr. Cassell has been intimately involved in establishment of science policy and legislation related to biomedical research and public health. She is the chairman of the Public and Scientific Affairs Board of the American Society for Microbiology; a member of the Institute of Medicine; has served as an advisor on infectious diseases and indirect costs of research to the White House Office of Science and Technology Policy, and has been an invited participant in numerous Congressional hearings and briefings related to infectious diseases, antimicrobial resistance, and biomedical research. She has served on several editorial boards of scientific journals and has authored over 250 articles and book chapters. Dr. Cassell has received several national and international awards and an honorary degree for her research in infectious diseases.

Elizabeth Downing

Member

Elizabeth Downing is President and founder of 3D Technology Labs in Sunnyvale, California. She is a winner of Technology and Innovation awards from Discover Magazine, Industry Week Magazine, and Saatchi & Saatchi, and was recently featured, along with Hillary Rodham Clinton, Madeleine K. Albright, and Sandra Day O'Connor in *Feminine Fortunes: Women of the New Millennium*.

Dr. Downing is well known for her contributions to the field of volumetric visualization and display technology. She holds more than a dozen patents on optical and laser-based instrumentation, working not only to develop a paradigm shifting technology, but also to channel it into key initial markets where time-critical visualization of volumetric data can mean the difference between life and death. A mechanical engineer specializing in systems integration by training, Dr. Downing not only conceived of the basic concepts, but also has developed the material processing capabilities and integrated the optical systems to create the world's first 360-degree walk-around three-dimensional display. Founded in 1996 with the help of key technical and business experts, her company, 3D Technology Labs has meticulously pushed the performance envelope of a challenging new visualization frontier.

Since 1996, Dr. Downing has been invited to speak as an expert in her field by the National Academy of Sciences, the Optical Society of America, SIGGRAPH, and the U.S. Display Consortium. In addition, she continues to push the boundaries of field, and is the author of several scientific publications relating to three-dimensional display, nonlinear optics, non-oxide glasses and their applications.

M. C. Gabriel

Member

Dr. Christina Gabriel joined The Heinz Endowments in 2006 with extensive experience in research, research management, university-industry collaboration, and technology transfer. She is responsible for the foundation's efforts to capitalize on the research strengths of the region's universities, medical centers, corporate and government laboratories to promote economic growth and opportunity in southwestern Pennsylvania.

After receiving her doctorate in electrical engineering and computer science from the Massachusetts Institute of Technology, Dr. Gabriel began her professional career in 1985 as principal investigator conducting experimental research at AT&T Bell Laboratories in New Jersey. Her work focused on lasers, optical fibers and thin-film waveguide devices for telecommunications, switching and computing applications. She holds three patents.

Dr. Gabriel joined the National Science Foundation in 1991 to direct industry-university collaborative centers programs and by 1997 was deputy head of the \$350 million engineering directorate. During the 1994 legislative cycle she served a detail on Capitol Hill as one of three majority professional staff members for the \$90 billion VA, HUD and Independent Agencies Subcommittee of the U. S. Senate Committee on Appropriations. From 1998 to 2006, she worked at Carnegie Mellon University in Pittsburgh, eventually becoming vice provost and chief technology officer. While in that position she also represented the region's three major research universities on the leadership team of the corporate consortium that competed successfully in 2004 to manage the five-year R&D Services Support Contract for the U.S. Department of Energy's National Energy Technology Laboratory.

Dr. Gabriel received both her master's and doctoral degrees from MIT and her undergraduate degree in electrical engineering from the University of Pittsburgh. In 1990 she was a visiting professor at the University of Tokyo in Japan. She has served as a reviewer and steering committee member for the National Science Foundation and the National Academies, and is a member of the MIT Corporation Visiting Committee on Sponsored Research and the Penn State Research Foundation Board. Dr. Gabriel has served on several nonprofit boards in Pittsburgh and as an external technology adviser for the Pittsburgh Public Schools' strategic planning process. She was a National Merit Scholar and an AT&T Bell Laboratories GRPW Fellow. Dr. Gabriel is married and has three children.

Trevor O. Jones

Member

Trevor O. Jones is the Founder and Chairman of Electrosonics Medical Inc.

Previously, he was the Chairman and Founder of BIOMEC Inc., an entrepreneurial company founded in 1998 engaged in the development and commercialization of biomedical engineered devices and products.

After 7 years, Mr. Jones retired from the Board of Directors of Echlin, Inc. in June 1998 where he served in a number of capacities as Chairman, Vice Chairman, CEO and Chairman of its European Advisory Committee.

Mr. Jones was appointed Chairman of the Board of Libbey-Owens-Ford Co. in 1987, and assumed the additional positions of President and CEO in May 1993. Mr. Jones retired from LOF in 1994 but remained a member of the Board of Directors including Chairman of their Salary and Bonus Committee until 1997.

From 1978 to 1987, Mr. Jones was an officer of TRW, Inc. He joined TRW in 1978 as Vice President, Engineering, Automotive Worldwide Sector and in 1979 he formed TRW's Transportation Electronics Group and was appointed its Group Vice President and General Manager. His responsibilities included activities in the United States, United Kingdom and Japan. In 1985, his responsibilities were further expanded to include Sales, Marketing, Strategic Planning, and Business Development activities for the entire Automotive Sector.

From 1959 to 1978, Mr. Jones spent 19 years with General Motors. His last position there was Director of General Motors Proving Grounds, a post to which he was appointed in 1974.

From 1959 to 1970, Mr. Jones was involved in General Motors' aerospace activities at the Delco Electronics Division. During this period, he directed many major programs, including the B-52 bombing navigational system production program, advanced military avionic systems, and the Apollo lunar and command module computers. In 1969, he was selected to direct the application of aerospace technology to automotive safety and electronics systems.

He became the Director, Automotive Electronic Control Systems, a newly organized group at General Motors Technical Center in 1970 and was appointed Director, Advanced Project Engineering in 1972. In this capacity, he directed many major vehicle, engine and component development programs.

In 1982 he was elected a member of the National Academy of Engineering and was cited for "leadership in the application of electronics to the automobile to enhance its mechanical performance." He has been a member of a number of National Research Council (NRC) study committees, including "National Interests in an Age of Global Technology", "Safety Research for a Changing Highway Environment", "Engineering as an International Enterprise", "Competitiveness of the US Automotive Industry" and "Time Horizons and Technology Investments". In 1993, Mr. Jones chaired the National Academy of Engineering Committee on the effects of products liability law on innovation.

From 1994 to 2000, Mr. Jones chaired the National Research Council's Standing Committee for the Partnership for a New Generation Vehicle, which is often referred to as the "80 mile per gallon super car". Mr. Jones continues to be

active in fuel cell developments and is a member of UTC's Fuel Cell Advisory Committee and a member of the Executive Committee of the Ohio Fuel Cell Coalition.

He is a Fellow of the British Institute of Electrical Engineers and received its Hooper Memorial Prize in 1950. He is a Life Fellow of the American Institute of Electrical and Electronics Engineers, and has been cited for "leadership in the application of the electronics to the automobile." He is also a Fellow of the Society of Automotive Engineers and received SAE's Arch T. Colwell Award in 1974 and in 1975, Vincent Bendix Automotive Electronics Engineering Award in 1976, Buckendale Lecturer Award in 1986, and Edward N. Cole Automotive Engineering Award 1988.

He is a Fellow of the Royal Society for the Encouragement of Arts, Manufacturing and Commerce (FRSA), an Honorary Fellow, Institution of Mechanical Engineers, a Fellow of the Engineering Society of Detroit and a Life Member of the Cleveland Engineering Society.

He received the U.S. Department of Transportation of Safety Award for Engineering Excellence in 1978, and in 1991, he received the H.H. Bliss Award from The Center for Study of Responsive Law; both awards recognized his pioneering contributions to inflatable occupant restraint systems development.

Mr. Jones holds many patents, has lectured and authored numerous papers on automotive electronics, occupant safety, fuel cells and international human resource management.

Mr. Jones was appointed to the National Motor Vehicle Safety Advisory Council by the Secretary of Transportation in 1971, and was appointed vice chairman of the council in 1972. In 1975, President Ford appointed him to a three-year term on the National Highway Safety Advisory Committee. In 1976, he was appointed the first non-governmental chairman of the committee.

In 1995, Mr. Jones was appointed to the Secretary of Defense's Defense Science Board's Committee for "Technology Investments for the 21st Century Military Superiority" and in 1996, to the Task Force on International Arms Development Cooperation.

Ohio's Governor Taft appointed Mr. Jones a Trustee of Cleveland State University in February 2001. Mr. Jones is also a member of the Visiting Committee for Biomedical Engineering at Case Western Reserve University and a member of its Medical School Technology Advisory Council. Mr. Jones is also a member of the Board of the Cleveland Orchestra and a member of the Development Committee of the Cleveland Clinic Foundation's Heart Center.

A native of Maidstone, England, Mr. Jones completed his formal engineering education in electrical engineering at Aston Technical College in 1952 and in mechanical engineering in Liverpool Technical College in 1957, prior to moving to the United States. He is a registered Professional Engineer in the State of Wisconsin and a Chartered Engineer in the United Kingdom.

Charles E. Kolb

Member

Dr. Charles Kolb is the President of Aerodyne Research, Inc., (ARI) a position he has held since 1994. Since 1970, ARI has provided research and development services requiring expertise in the physical and engineering sciences to commercial and government clients working to solve national and international environmental problems. These include a wide range of topics such as global and regional environmental quality and the development of clean and efficient energy and new propulsion technologies.

Dr. Kolb has received numerous professional honors and has served in a broad range of professional and Academy related positions. He is currently Chair of the Advisory Council for the Department of Civil and Environmental Engineering at Princeton University and has served as a committee member (2003-2009) and Chair (2006-2008) of the Committee on Environmental Improvement of Society. In addition to over 250 reports, non-refereed symposia papers, patents, book reviews, and policy papers, Dr. Kolb has published over 190 archival journal articles and book chapters. He has contributed to a variety of National Academy of Sciences studies and is currently serving on the National Research Council's Board on Chemical Sciences and Technology. He is a Fellow of the American Physical Society, American Chemical Society, American Geophysical Union, Optical Society of America, and the American Association for the Advancement of Science.

Dr. Kolb holds an S.B. in Chemistry (Chemical Physics option) from Massachusetts Institute of Technology, an M.S. in Physical Chemistry from Princeton University and a Ph.D. in Physical Chemistry from Princeton University. His research interests include: atmospheric, combustion and materials chemistry as well as physics and chemistry of aircraft and rocket exhaust plumes.

Henry Linsert

Member

Henry Linsert is the CEO of Columbia Biosciences Corporation.

Previously, he served as Chairman of the Board and CEO of Martek Biosciences Corporation, a company engaged in the commercial development of microalgae into a portfolio of high value products and product candidates consisting of Nutritional Products, Advanced Detection Systems and Other Products, primarily Algal Genomics.

From 1987 to 1988, he was primarily engaged as President of American Technology Investments Corp. ("ATI"), a consulting company specializing in the development and financing of early stage companies in the Mid-Atlantic area. He was President and Chief Executive Officer of Suburban Capital Corporation, a venture capital subsidiary of Sovran Financial Corporation (now part of Bank of America), from 1983 to 1987. Before 1983, Mr. Linsert was Vice President of Inverness Capital Corporation, a small business investment company, and Vice President of First Virginia Bank. He also served as a Captain in the U.S. Marine Corps and as an artillery officer in Vietnam.

Mr. Linsert received an M.A. in economics from George Washington University and a B.A. from Duke University.

W. C. McFadden, II

Member

W. Clark McFadden II, partner at Dewey & LeBoeuf, LLP, represents corporate clients in international trade, encompassing work in litigation, regulation and legislation. He also specializes in international corporate transactions, especially the formation of joint ventures and consortia, and international investigations and enforcement proceedings.

Mr. McFadden has a broad background in foreign affairs and international trade, having experience with Congressional committees, the U.S. Department of Defense and the National Security Council.

In 1986, he was appointed General Counsel, President's Special Review Board ("Tower Commission"), to investigate the National Security Council system and the Iran-Contra Affair.

In 1979, Mr. McFadden served as Special Counsel to the Senate Foreign Relations Committee on the Strategic Arms Limitations Treaty (SALT II). Previously, from 1973-1976, he was General Counsel, Senate Armed Services Committee, and was responsible to the Committee for all legislative, investigatory and oversight activities.

Mr. McFadden is the secretary to the Board of Directors of the Semiconductor Industry Association, the Optoelectronics Industry Development Association, and the Semiconductor Research Corporation.

Duncan T. Moore

Member

Duncan Moore is the Rudolf and Hilda Kingslake Professor of Optical Engineering and Professor of Biomedical Engineering at the University of Rochester. He is also Special Assistant to the University President and Executive Director of the University, Industry and Government Partnership for Advanced Photonics. Previously, from 1995 until the end of 1997, he served as Dean of Engineering and Applied Sciences at the University.

In 1996, Dr. Moore also served as President of the Optical Society of America (OSA), a professional organization of 12,000 members worldwide. From January 2001 to the present, he has served as Senior Science Advisor at OSA.

The U.S. Senate confirmed Dr. Moore in the fall of 1997 for the position of Associate Director for Technology in The White House Office of Science and Technology Policy (OSTP). In this position, which ended December 2000, he worked with Dr. Neal Lane, President Clinton's Science Advisor, to advise the President on U.S. technology policy, including the Next Generation Internet, Clean Car Initiative, elder tech, crime tech, and NASA. From January through May 2001, Dr. Moore served as Special Advisor to the Acting Director of OSTP.

Dr. Moore has extensive experience in the academic, research, business, and governmental arenas of science and technology. He is an expert in gradient-index optics, computer-aided design, and the manufacture of optical systems. He has advised nearly 50 graduate thesis students. In addition, Dr. Moore began a one-year appointment as Science Advisor to Senator John D. Rockefeller IV of West Virginia in 1993. He also chaired the successful Hubble Independent Optical Review Panel organized in 1990 to determine the correct prescription of the Hubble Space Telescope. Dr. Moore is also the founder and former president of Gradient Lens Corporation of Rochester, NY, a company that manufactures the high-quality, low-cost Hawkeye boroscope.

Dr. Moore was elected to the National Academy of Engineering in February 1998. He has been the recipient of the Science and Technology Award of the Greater Rochester Metro Chamber of Commerce (1992), Distinguished Inventor of the Year Award of the Rochester Intellectual Property Law Association (1993), Gradient-Index Award of the Japanese Applied Physics Society (1993), and an Honorary Doctor of Science degree from the University of Maine (1995). In 1999, he received the National Engineering Award of the American Association of Engineering Societies and was recognized as the Engineer of the Year by the Rochester Engineering Society. Most recently, he was the recipient of the 2001 OSA Leadership Award.

Dr. Moore holds a Ph.D. in Optics (1974) from the University of Rochester. He had previously earned a master's degree in Optics at Rochester and a bachelor's degree in Physics from the University of Maine.

Kent Murphy

Member

Dr. Kent Murphy is the Founder and CEO of Luna Innovations, a next-generation, employee-owned company. Luna has built a complete network for driving innovative technologies through the development cycle all the way to fully functioning separate subsidiary companies. Luna has 200+ working the technology sector in biotechnology, nanomaterials, optical fiber telecommunications and instrumentation, and control and predictive based maintenance as well as other key technologies of the future. Luna Innovations has licensed patents from Virginia universities, government labs, and large industrial partners, and is ranked second only to GM in industrial-funded research at Virginia Tech.

Murphy is a recipient of both the High Tech Entrepreneur Award for the New Century Technology Council and the Entrepreneur of the Year Award for Virginia Small Business Innovations Research. Murphy holds the B.S. Degree in Engineering Science and Mechanics and the Master of Science and Ph.D. in Electrical Engineering from Virginia Tech.

Linda Powers

Member

Linda Powers has more than fifteen years of experience in the fields of corporate mergers and acquisitions (both hostile and friendly), restructurings, and highly leveraged, structured and specialty finance transactions. She is a co-founder and Managing Director of Toucan Capital Corporation.

Before co-founding Toucan Capital, Ms. Powers was Senior Vice President, Global Finance, at Enron Corporation. Before joining Enron, Ms. Powers served as the Deputy Assistant Secretary of Commerce in the Bush, Sr. Administration. In that capacity, she was responsible for a number of small business programs, mainly concerned with access to capital. She also assisted financial services, information services and related businesses in entering foreign markets, and was responsible for government-to-government negotiations to remove foreign market entry restrictions for U.S. firms. She was co-lead negotiator for the U.S. on the North American Free Trade Agreement, financial sector agreement, which opened banking, securities, insurance, pension fund and related opportunities in Canada and Mexico.

During the 1980s, Ms. Powers practiced law, specializing in corporate mergers, acquisitions and financings, and certain kinds of intellectual property transactions. While working for the headquarters of the European Union in Brussels, she was responsible for drafting the initial intellectual property rules that now govern know-how licensing in the European Union.

Ms. Powers has also taught International Business Transactions and European Business Law at Georgetown Law School for eight years, as an adjunct professor. She is a graduate, magna cum laude, of both Princeton University and Harvard Law School.

Tyrone C. Taylor

Member

Tyrone C. Taylor brings an exceptional combination of hands on experience in technology development and commercialization. He has held senior management positions in the federal government, worked extensively in the R&D community, and is currently active in a leading private sector firm. He is the director for Washington Relations at the West Virginia High Technology Consortium Foundation and is the founder and president of Capitol Advisors on Technology, a technology-consulting firm that serves the Washington, DC area. Capitol Advisors represents industry, federal and non-profit clients and assists them in all aspects of technology commercialization. Mr. Taylor is well known within the federal research and development (R&D) associations and small business community as an authoritative source with hands on experience in launching new initiatives.

Reflecting his broad experience, he has been asked to serve on numerous technology advisory committees such as the National Science Foundation, National Defense Industrial Association, and the Minority Business Technology Transfer Consortium. Congressional science and technology committees have also called upon him to assess the impact of legislation affecting the technology commercialization community.

As an executive on loan, Mr. Taylor represented the entire Federal R&D community as the Washington, DC Representative for the Federal Laboratory Consortium for Technology Transfer, a Congressionally chartered organization. In this capacity, he provided leadership in developing legislation that governs the private and public sectors ability to collaborate in R&D activities, manage intellectual property and commercialize technologies. Recognized for his efforts by Congress, Mr. Taylor often addresses audiences throughout the U.S. and abroad on technology development, transfer and commercialization issues.

Prior to starting Capitol Advisors, Mr. Taylor served as the Senior Vice President for Marketing and Business Development for Unisphere, Inc., a technology assessment firm aimed at developing dual-use technologies for the defense and commercial marketplace. In this capacity, he aided in the expansion and growth of small businesses and their clients, helping to generate about 35 million in revenue and produce over \$64 million in cost savings. Due to his broad technology background, he is able to interact effectively with all aspects of the technology commercialization community including inventors, attorneys, acquisition managers, test and engineering and marketing as examples. His technology management experience covers such areas as medical technologies, energy and environment, advanced materials, infrared imaging, and aerospace.

Before joining Unisphere, Mr. Taylor served in the Senior Executive Service in a variety of executive management positions at NASA. He brings extensive program/project experience having managed over \$1 billion in contracts and grants for systems engineering, information systems, facilities management, and technical and administrative services as a member of the International Space Station program, which included Japan, Canada and the European Space Agency and the Space Science management team.

Tyrone Taylor has a Masters in Business Administration from Southeastern University. He earned an A.B. in Business Administration from Wilmington College, and has served as Adjunct Professor for numerous technology transfer/commercialization courses. Other activities include serving on the board of Pediatric AIDS/HIV Care in

Washington, DC and nurturing businesses in the assistive technology arena.

Charles R. Trimble

Member

As President, Chief Executive Officer, and as one of the Company's founders, Charles Trimble guided Trimble Navigation to its dominant role in the GPS (Global Positioning System) information technology market. Before founding Trimble, Mr. Trimble was manager of Integrated Circuit Research and Development at Hewlett-Packard's Santa Clara Division. During his tenure at HP, he was recognized for developing commercial advances in efficient signal processing, high-speed analog-to-digital converters, and digital time measurement techniques to the picosecond level.

Mr. Trimble received his B.S. degree in Engineering Physics, with honors, in 1963, and his M.S. degree in Electrical Engineering, in 1964, from the California Institute of Technology. He was a member of the Vice President's Space Advisory Board's task group on the future of U.S. Space Industrial Base for the National Space Council. In September of 1994, Mr. Trimble was honored with the Piper General Aviation award from the American Institute of Aeronautics and Astronautics (AIAA) for pioneering the manufacture and application of affordable GPS.

Patrick H. Windham

Member

Until April 1997, Patrick Windham served as Senior Professional Staff Member for the Subcommittee on Science, Technology, and Space of the U.S. Senate's Committee on Commerce, Science, and Transportation. He helped the Senators oversee and draft legislation for several major civilian R&D agencies with responsibility for science, technology, and U.S. competitiveness; industry-government-university R&D partnerships; state economic development; federal laboratory technology transfer; high-performance computing; and computer encryption. From 1982 to 1984, he served as a legislative aide in the personal office of Senator Ernest Hollings. From 1976 to 1978, he worked as a Congressional fellow with the Senate Commerce Committee and then returned to California from 1978 to 1982 to pursue graduate studies in political science at the University of California at Berkeley.

Mr. Windham holds a Masters of Public Policy from the University of California at Berkeley and a B.A. from Stanford University. He is currently an independent, California-based consultant on science and technology policy issues.