

Making Value for America: Foundational Study

Committee

Nicholas M. Donofrio

Chair

NICHOLAS M. DONOFRIO (chair) is a 44-year IBM veteran who held the coveted position of Executive Vice President Innovation and Technology and was also selected as an IBM Fellow, the company's highest technical honor. Mr. Donofrio holds seven technology patents, is a member of numerous technical and science honor societies, and holds several board positions.

Mr. Donofrio is focused sharply on advancing education, employment, and career opportunities for underrepresented minorities and women in the STEM disciplines. He served for many years on the Board of Directors for the National Action Council for Minorities in Engineering (NACME) and was NACME's Board chair from 1997 through 2002. He also served for several years on the Board of Directors for INROADS, a nonprofit organization focused on the training and development of talented minority youth for professional careers in business and industry. In 2003, he was awarded the Rodney D. Chipps Memorial Award by the Society of Women Engineers (SWE). He presently is co-chair of the New York Hall of Science.

He is a Fellow of the Institute for Electrical and Electronics Engineers, a Fellow of the U.K.-based Royal Academy of Engineering, a member of the US-based National Academy of Engineering, a Fellow of the American Academy of Arts and Sciences, a member of the Board of Directors for the Bank of New York/Mellon, Liberty Mutual, Delphi Automotive, AMD, and MITRE. Additionally, he is a member of the Board of Trustees at Rensselaer Polytechnic Institute and Syracuse University as well as being a member of the CT Board of Regents for Higher Education.

In 2002–2003, he led the work effort for the Council on Competitiveness around their National Innovation Initiative (NII) which went on to become the America Competes Act.

In 2005, the US Department of Education appointed him to the Commission on the Future of Higher Education, a 20-member delegation of business and university leaders charged with developing a national strategy for post-secondary education to meet the needs of America's diverse population and workforce.

In 2011–2012 he chaired a special committee tasked by the Governor of Vermont to evaluate the relationship between the State of Vermont and the University of Vermont (UVM).

In 2012, Donofrio was invited to be an independent advisor for one of the USA Intelligence Community Agencies.

Most recently, he was a member of the Prime Minister of Taiwan's Science and Technology Advisory Board (2008–2011), a senior fellow at the Kauffman Foundation (2009–2012), and co-chair for the Secretary of Energy's Advisory Board (2009–2012).

Donofrio holds a master's degree and a bachelor's degree in electrical engineering from Syracuse University and Rensselaer Polytechnic Institute, respectively. He has received honorary doctorates from Polytechnic University (now NYU-Poly), University of Warwick-UK, Marist College, University of Edinburgh-UK, Pace University, National University of Ireland-Maynooth, and Syracuse University.

Additionally, he has received several industry, government, and academic awards. Among them ...

- * 1992: Davies Medal: Rensselaer Polytechnic Institute (RPI)
- * 1992: Alumni Association Fellow, Rensselaer Polytechnic Institute
- * 2002: Mensforth International Gold Medal, UK Institution of Electrical Engineers
- * 2002: Distinguished Leadership Award, New York Hall of Science
- * 2003: Alumni Key Award, Rensselaer Polytechnic Institute
- * 2003: Technology Leader of the Year, IndustryWeek Magazine

- * 2003: Technical Executive of the Year, University of Arizona
- * 2005: George Arents Pioneer Medal, Syracuse University's highest alumni honor
- * 2005: Overall Technology Leadership Award, CNBC
- * 2005: Justice for All Award, American Association of People with Disabilities
- * 2006: Urban Visionaries Award, Cooper Union for the Advancement of Science and Art
- * 2006: Named by Business Week magazine as among the 25 Top Innovation Champions
- * 2006: Robert Fletcher Award, Thayer School of Engineering, Dartmouth College
- * 2006: Albert Fox Demers Medal, Rensselaer Polytechnic Institute
- * 2007: National Education and Leadership Award, Sons of Italy Foundation
- * 2008: Gold Medal, US National Nuclear Security Administration (NNSA). First-NNSA Gold Medal presented to a non-US government employee.
- * 2008: Director's Memento of Esteem, US National Security Agency (NSA). For substantial contributions to the United States Department of Defense.
- * 2008: Excellence in Leadership Award, US Chamber of Commerce.
- * 2008: Renaissance Engineer Award, Society of Hispanic Professional Engineers
- * 2008: Named IBM Fellow, the company's highest technical honor.
- * 2009: Toastmasters International Communication and Leadership Award
- * 2010: IRI Medal of the Industrial Research Institute Inc.
- * 2011: Ridgefield, Connecticut, Library Paccadolmi Award for Leadership
- * 2012: Rensselaer Alumni Association Award, RPI's highest alumni honor
- * 2013: Pace University Leadership and Service in Technology Award

Ashok Agrawal

Member

ASHOK AGRAWAL, MS, PE, is the managing director for professional development and director of outreach and engagement at the American Society for Engineering Education. Ashok has served engineering and engineering technology and has held every professorial and administrative position from instructor to chief academic officer. As director of the Emerson Center, Agrawal actively engaged with St. Louis Community College's Workforce and Community Development, St. Louis County Economic Council, and the St. Louis Regional Chamber and Growth Association (RCGA).

Agrawal received his Doctorate in Management degree from University of Maryland University College, and holds an MS degree in Materials Science, an MS degree in Mining Engineering from the University of Kentucky, and a BS degree in Metallurgical Engineering from Nagpur University in India. Before joining St. Louis Community College, Agrawal was a tenured Associate Professor and Chair of the Department of Engineering Technology at West Virginia Institute of Technology.

Prior to assuming his present position he was the vice president for Academic Affairs, dean of the Math, Science, Engineering, and Technology Division and responsible for leading and administering its transfer and career programs at St. Louis Community College at Florissant Valley. His efforts led to the establishment of the Emerson Center for Engineering and Manufacturing, the development of the joint 2+2 Bachelor's degree program with Southeast Missouri State, and creation of several customized training programs for key regional corporations including Ameren, AT&T, and Boeing.

In 2006, he was selected to participate in Leadership St. Louis® (LSL), one of the most highly-respected leadership development programs in the nation. The program was built on the belief that the community, just as any business organization, requires strong leadership to grow and improve. In the same year, he was appointed by the Governor of Missouri to serve on the Missouri Math, Engineering, Technology, and Science (Mo-METS) task force, and served on the Mo-METS coalition. He also serves on the planning team of the St. Louis Region's FIRST Robotics Competition and has served on the science advisory committee of the St. Louis Science Center. He is also a member of the Society of Manufacturing Engineers- Education Foundation board.

Agrawal has been honored with numerous awards and recognitions. He is the recipient of the 2003 Florissant Valley David L. Underwood Lecture Award, and also the Governor's Award for Excellence in Teaching. An ASEE Fellow, he is the recipient of 2012 James H. McGraw Award and 1996 Frederick J. Berger Award. He has served ASEE in numerous offices of the Engineering Technology Council and Division, and on the Technology Accreditation Commission of ABET.

Agrawal and his colleagues led the effort to establish a St. Louis Regional Engineering Academy for St. Louis area schools, which included the implementation of Project Lead The Way engineering curriculum. He has received several grants from the National Science Foundation (NSF), and other public and private agencies, including a grant for the College Career Transition Initiative from the League of Innovations for Community Colleges.

He has served as a Program Officer at the Division of Undergraduate Education at the National Science Foundation, and continues to assist NSF on special projects. Agrawal has also served on the National Academy of Engineering (NAE) Committee to Advance Engineering Studies at Tribal Colleges, the NAE Committee on Community Colleges Role in Engineering and Education, and the National Research Council (NRC) Board on Engineering Education.

Ashok Agrawal has also been involved in international activities collaborating with Georgetown University to coordinate The Cooperative Association of States for Scholarships (CASS) program which provides technical training

and professional training for low-income and rural students from the Dominican Republic, El Salvador, Guatemala, Haiti, Honduras, Mexico, and Nicaragua; and The Scholarships for Education and Economic Development (USAID SEED) Program, which is funded by the United States Agency for International Development (USAID) and administered by Georgetown University's Center for Intercultural Education and Development (CIED).

Erik K. Antonsson

Member

ERIK K. ANTONSSON is currently the Corporate Director of Technology for the Northrop Grumman Corporation. In this role he serves as the corporate focal point for technology customers, research labs, university research, key boards and technology forums, and chairs the Corporate Technology Council. He previously served as the Director of Technology Strategy & Planning for the Aerospace Systems sector of Northrop Grumman where he was responsible for coordinating technology strategy across the organization and for establishing and growing external strategic relationships to support current and future NGAS programs.

From 2007 through 2011 he established and led the Northrop Grumman Aerospace Research Laboratories (ARL). In that role he had the responsibility for recruiting and leading a distinguished multidisciplinary research team, and for setting the long-term R&D directions for the Aerospace Sector. R&D in the laboratories led by Dr. Antonsson included intelligent autonomy, nano-structured materials and metamaterials, carbon nanotubes for structural, thermal and electrical applications, and advanced propulsion and power systems.

Dr. Antonsson served on the faculty of Mechanical Engineering at the California Institute of Technology from 1984 through 2009, where he organized the university's Engineering Design Research Laboratory. He previously served as the executive officer (Chair) of Caltech's Mechanical Engineering Department, and served as Chief Technologist for NASA's Jet Propulsion Laboratory in which he provided intellectual leadership for JPL, strategic planning of advanced technology and guidance for approximately 550 technology researchers. Dr. Antonsson was the co-chair of JPL's Science and Technology Management Council, a member of JPL's Executive Council, Strategic Management Council, Project & Engineering Management Council, the senior representative to NASA Headquarters. He was an NSF Presidential Young Investigator (1986-1992), and won the 1995 Richard P. Feynman Prize for Excellence in Teaching, and is a co-winner of the 2001 TRW Distinguished Patent Award.

Dr. Antonsson earned a bachelor's degree in mechanical engineering from Cornell University and a master's and doctorate in mechanical engineering from MIT. He is a Fellow of the American Society of Mechanical Engineers and is currently on the editorial board of the International Journal: Research in Engineering Design. He served as an Associate Technical Editor of the ASME Journal of Mechanical Design with responsibility for the Design Research and the Design Theory and Methodology areas. He has published more than 140 scholarly papers in the engineering design research literature, has edited three books and holds eight US patents. He is a registered Professional Engineer in California, and serves as an engineering consultant to industry, research laboratories, and to the Intellectual Property bar.

Lawrence D. Burns

Member

LAWRENCE D. BURNS is professor of engineering practice at the University of Michigan (U-M). His research focuses on transforming mobility and energy systems.

Prior to joining the U-M faculty, Larry completed a 40-year career with General Motors (GM) on October 1, 2009. He left GM as corporate vice president of research and development and strategic planning, a role in which he oversaw GM's advanced technology, innovation programs, and corporate strategy. He also served on GM's top decision-making bodies for operations and products.

In addition to driving innovation into today's vehicles, Burns led GM's development of a new automotive "DNA" that marries electrically driven, connected and driverless vehicle technologies. The goal is to realize sustainable personal mobility with smart vehicles that are aspirational and affordable.

Burns began his career as a member of the Research & Development staff, where his research focused on transportation, logistics, and production systems. He subsequently held executive positions in several GM divisions in the areas of product program management, quality, production control, industrial engineering, and product and business planning. In May 1998, he was named a vice president of General Motors, with responsibility for R&D and planning.

Burns holds a PhD in civil engineering from the University of California at Berkeley. He earned his bachelor's degree in mechanical engineering from General Motors Institute (now Kettering University) and his master's degree in engineering/public policy from University of Michigan.

From January 2010 to June 2013, Burns was the Director of the Program for Sustainable Mobility at Columbia University. He was also Vice Chairman of the Board of MRI Global from 2019 to 2102.

In 2000, Burns received Kettering University's Engineering Alumni Achievement Award for his contributions to the engineering profession. In 2002, the Deafness Research Foundation recognized him with its National Campaign for Hearing Health Leadership Award. He served as National Honorary Chairman for the MATHCOUNTS Foundation during 2004 and 2005. In 2005, he was a member of a General Motors team awarded the Franz Edelman Award from the Institute for Operations Research and the Management Sciences. He is also the recipient of the 2005 Alumni Merit Award from the University of Michigan Industrial and Operations Engineering Department.

In 2007, Burns was awarded the ASM International Medal for the Advancement of Research and the Society of Plastics Engineers Global Engineering Leadership Award. In 2008, he received the Golden Gear Award from the Washington Automotive Press Association and the Industry Pioneer Award from the Alternative Fuel Vehicle Institute. Most recently, he has been named the recipient of the 2009 Fuel Cell Seminar & Exposition Award for demonstrating significant leadership in promoting the overall advancement of fuel cell technology. Dr. Burns was elected to the National Academy of Engineering in 2011.

Steve Hoover

Member

STEPHEN HOOVER is CEO of PARC, a Xerox company, which is in "the business of breakthroughs." Hoover joined PARC in 2011. Practicing open innovation since being incorporated in 2002, PARC today provides custom R&D services, technology, specialized expertise, best practices, and intellectual property to Fortune 500 and Global 1000 companies, startups, and government. Hoover oversees PARC's work for clients in diverse focus areas and competencies including networking, novel electronics, human-centered innovation services, cleantech, intelligent systems, contextual intelligence, and more.

Motivated by his passion for bridging functional silos, Hoover specializes in integrating technology, market, customer, and business opportunities—from fundamental R&D to commercial scale-up. As Vice President of the Xerox Research Center of Webster (New York), Hoover supported core and next-generation research and development. He later led the global organization responsible for the company's software and electronics development. In these roles, Hoover was responsible for multi-million dollar R&D investments and product strategy encompassing several platforms and market offerings. He has led long-term technology investments in grid and cloud computing, nanotech, mobile, the Future of Work, and advanced printing and mass customization technologies.

Dr. Hoover earned his PhD and MS in Mechanical Engineering from Carnegie Mellon University, BS from Cornell University, and 1 of 10 national fellowships at AT&T Bell Labs. He has seven patents. Hoover has served on the Board of Directors for the Rochester Museum and Science Center, including leading its K-12 STEM Education Task Force; and is a regional Board Member of FIRST Robotics, an organization which inspires young science, technology, and engineering leaders through mentor-based programs.

Christopher Johnson

Member

CHRISTOPHER JOHNSON leads GE Global Research's Management Science Lab. His and the interests of MSL are to mathematically describe and optimize complex business-physical systems to unlock customer value in asset and process design, operational decision support and performance based business models. Current research programs include healthcare capacity and safety, aviation and rail network optimization, power generation and various valuation and optimization endeavors. Credited with generating in excess of \$1billion dollars of value for GE, MSL is a recipient of the INFORMS Prize, which is awarded to an organization that has repeatedly applied the principles of Management Science in pioneering, varied, novel, and lasting ways. Chris is a 28 year GE veteran, entering the company through GE's Engineering Development Program. He holds over 30 US and foreign patents, is a recipient of GE's Whitney and Dushman technology awards and the Alexander Hamilton Gold Award for Corporate Risk Management. He holds a BEng from SUNY and an MBA from the University of Chicago Booth School of Business.

Dean Kamen

Member

DEAN KAMEN is an inventor, an entrepreneur, and a tireless advocate for science and technology. His roles as inventor and advocate are intertwined—his own passion for technology and its practical uses has driven his personal determination to spread the word about technology's virtues and by so doing to change the culture of the United States.

As an inventor, he holds more than 440 US and foreign patents, many of them for innovative medical devices that have expanded the frontiers of health care worldwide. These include the AutoSyringe infusion pump, the HomeChoice™ peritoneal dialysis system, the iBOT™ mobility device, and the Segway® Human Transporter.

Kamen has received many awards for his efforts. Notably, Kamen was awarded the National Medal of Technology in 2000. Presented by President Clinton, this award was in recognition for inventions that have advanced medical care worldwide, and for innovative and imaginative leadership in awakening America to the excitement of science and technology. Kamen was also awarded the Lemelson-MIT Prize in 2002, and was inducted into the National Inventors Hall of Fame in May 2005. He has been a member of the National Academy of Engineering since 1997.

In addition to DEKA, one of Dean's proudest accomplishments is founding FIRST® (For Inspiration and Recognition of Science and Technology), an organization dedicated to motivating the next generation to understand, use, and enjoy science and technology. Founded in 1989, this year FIRST will serve more than 300,000 young people, ages 6 to 18, in more than 60 countries around the globe. High-school-aged participants are eligible to apply for more than \$15 million in scholarships from leading colleges, universities, and corporations. Studies have shown that FIRST alumni are highly motivated to pursue careers in science and engineering, thus fulfilling Dean's goal of inspiring the next generation of technological leaders.

Linda P. Katehi

Member

LINDA P.B. KATEHI became the sixth chancellor of the University of California, Davis, on August 17, 2009. As chief executive officer, she oversees all aspects of the university's teaching, research and public service mission. Chancellor Katehi also holds UC Davis faculty appointments in electrical and computer engineering and in women and gender studies. A member of the National Academy of Engineering, she chaired until 2010 the President's Committee for the National Medal of Science and the Secretary of Commerce's committee for the National Medal of Technology and Innovation. She is a fellow of the American Association for the Advancement of Science and the American Academy of Arts and Sciences, and is a member of many other national boards and committees.

Previously, Chancellor Katehi served as provost and vice chancellor for academic affairs at the University of Illinois at Urbana-Champaign; the John A. Edwardson Dean of Engineering and professor of electrical and computer engineering at Purdue University; and associate dean for academic affairs and graduate education in the College of Engineering and professor of electrical engineering and computer science at the University of Michigan.

Since her early years as a faculty member, Chancellor Katehi has focused on expanding research opportunities for undergraduates and improving the education and professional experience of graduate students, with an emphasis on underrepresented groups. She has mentored more than 70 postdoctoral fellows, doctoral and master's students in electrical and computer engineering. Twenty-two of the 44 doctoral students who graduated under her supervision have become faculty members in research universities in the United States and abroad.

Her work in electronic circuit design has led to numerous national and international awards both as a technical leader and educator, 19 US patents, and several additional US patent applications. She is the author or co-author of 10 book chapters and about 650 refereed publications in journals and symposia proceedings.

She earned her bachelor's degree in electrical engineering from the National Technical University of Athens, Greece, in 1977, and her master's and doctoral degrees in electrical engineering from UCLA in 1981 and 1984, respectively.

The University of California, Davis, is one of 10 UC campuses and one of a select group of 62 North American universities admitted to membership in the prestigious Association of American Universities.

For 100 years, UC Davis has engaged in teaching, research and public service that matter to California and transform the world. Located close to the state capital, UC Davis has 32,000 students, an annual research budget that exceeds \$700 million, a comprehensive health system and 13 specialized research centers. The university offers interdisciplinary graduate study and more than 100 undergraduate majors in four colleges—Agricultural and Environmental Sciences, Biological Sciences, Engineering, and Letters and Science—and advanced degrees from six professional schools—Education, Law, Management, Medicine, Veterinary Medicine and the Betty Irene Moore School of Nursing.

Theresa Kotanchek

Member

THERESA KOTANCHEK is the Chief Executive Officer and co-founder of Evolved Analytics LLC, a data science and system design, software and solutions provider (www.evolved-analytics.com). Prior to assuming this role, she spent 23 years in executive and leadership positions at Dow Chemical, including most recently, the Vice President for Sustainable Technologies and Innovation Sourcing. From 2005–2010, she served as the Chief Technology Officer of Dow Chemical China Company Limited, leading Asia Pacific R&D, including the development of Dow's state-of-the-art 1 million square foot R&D center in Shanghai, China, and the staffing of more than 1,200 scientists and engineers across the region. Over the course of her Dow tenure, she held numerous business and corporate roles, including Global Director in Dow Plastics, Dow Ventures and Corporate R&D. In 2011–2012, she served as the industrial led and working group co-chair of President Obama's Advanced Manufacturing Partnership Initiative.

Kotanchek holds a doctorate in Materials Science, a masters of science in Ceramic Science, and a bachelor of science in Ceramic Science & Engineering from The Pennsylvania State University. She has published over 100 technical articles, holds 6 US patents, and has given over 200 invited talks. She is an active member of the American Chemical Society, Materials Research Society, Council of Industrial Research, and Society of Women Engineers. She has served on the Shanghai American Chamber of Congress Science & Technology Subcommittee and serves on numerous External Advisory Boards, including Penn State, Georgia Tech, and University of Michigan.

Ann L. Lee

Member

ANN LEE is Senior Vice President at Genentech and Head of Global Technical Development at Roche. She is responsible for developing process and analytical technologies, scale-up, manufacturing, control and delivering GMP clinical supplies for all new product candidates in the pipeline. She leads a global organization consisting of Biologics Technical Development, Small Molecules Technical Development, Device and drug delivery development, IMP Quality Assurance, Clinical Supplies Management, Project and Portfolio Management, Planning, Processes, Systems, and Manufacturing Science and Technology support. Lee is accountable for all CMC strategies and execution for pipeline products, and commercial product technical improvements. Prior to joining Genentech in September 2005, Lee worked for 16 years at Merck & Co., Inc., where she held several leadership positions in vaccine development in the Merck Research Laboratories. She was also project leader for a number of vaccine products, and franchise leader of bacterial vaccines. She served as Vice President, Chemical Technology and Engineering, in the Merck Manufacturing Division. Lee holds a BS in Chemical Engineering from Cornell University, and a PhD from Yale University. She is a member of the National Academy of Engineering, American Institute of Chemical Engineers, American Chemical Society, Society of Women Engineers, Sigma Xi, a Fellow of the American Institute of Medical and Biological Engineering, and serves on various academic and scientific advisory boards. She received the Corporate Innovation Award from the AIChE. She was named among 150 most influential women in Bay Area Business, and awarded the Genentech Women Professionals' Leadership Award. She was Associate Editor of Biotechnology and Applied Biochemistry, organizer of numerous conferences, and an invited lecturer at various meetings and universities. She is actively involved in company-wide recruiting efforts and mentoring boys and girls in science.

Arunava Majumdar

Member

ARUN MAJUMDAR recently joined Google, where he will drive Google.org's energy initiatives and advise the company on its broader energy strategy. Dr. Majumdar is widely recognized as one of the foremost leaders in energy innovation. He was previously with the Department of Energy, where he served as Acting Undersecretary of Energy and was founding Director of the Advanced Research Projects Agency-Energy (better known as ARPA-E), identifying and providing essential support for the development of transformational new energy technologies. In his roles at Lawrence Berkeley National Laboratory and the University of California at Berkeley, he made great contributions in the areas of energy conversion, transport, and storage, and in 2005 he was elected a member of the National Academy of Engineering.

Brad Markell

Member

BRAD MARKELL is the Executive Director of the AFL-CIO Industrial Union Council (IUC) and chairs the AFL-CIO energy task force. The Industrial Union Council is comprised of 11 unions with over 2 million members, including nearly one million directly employed in the manufacturing sector. The IUC works to build and advance policy frameworks that support manufacturing in the United States.

Prior to joining the staff of the AFL-CIO, Brad was an International Representative with the UAW in Detroit for 15 years, where his duties included helping develop and advance the union's positions on energy and environmental policy, and performing costing and financial analysis for bargaining. Brad has participated in several rounds of national bargaining in the automobile, aerospace and heavy truck industries.

Brad was deeply involved in the negotiations leading to the historic tailpipe emissions standards for light-duty vehicles, and led the UAW's efforts to establish public support for manufacturing clean and efficient vehicles in the United States, including the Advanced Technology Vehicle Manufacturers and the Battery and Electric Drive grant programs administered by DOE.

Brad's board and committee service on behalf of the labor movement has been across a broad array of organizations, including the MIT Lean Aerospace Initiative, the Manufacturing Skills Standards Council, the Coalition for Justice in the Maquiladoras, the Michigan Climate Action Council, the Energy Future Coalition, and many others.

Brad has degrees from the University of Michigan and Wayne State University. He joined the UAW in 1976 and is a member of Local 14 in Toledo, Ohio.

J. Jerl Purcell, III

Member

JOHN JERL PURCELL III is Executive Director, Cummins, Inc. He has led the development of the latest three diesel engine platforms at Cummins including the ISF2.8, ISF3.8, and most recently the QSM12. Each of these new platforms are clean sheet designs and utilize modular systems. Manufacturing technology from different industry sectors and independence from legacy design features were key ingredients in reaching both material and conversion cost targets. Each engine will advance regionally with emissions legislation to become globally manufactured by 2017 with system changes tailored to local supply base technology.

Jerl is a Cummins Six Sigma Chairman's Award winner (2012), certified sponsor, and certified green belt (2012).

Jerl has a BSME from Virginia Tech (1987) and MSME from Purdue (1994). He holds 12 multinational patents with others pending.

Jonathan J. Rubinstein

Member

JON RUBINSTEIN IS former executive chairman and CEO, Palm Inc. Jon has helped launch some of the most influential computing products of our time. He served as Palm's chairman and CEO prior to its acquisition by HP and was the driving force behind the company's return to innovation with its award-winning webOS software and innovative smartphone devices. As head of the Palm global business unit, Jon was leading HP's efforts in the mobility space, responsible for webOS software development and webOS-based hardware products.

As a member of Apple's senior executive staff, Jon was instrumental in conceiving the iPod and, as head of hardware engineering, led the rapid rollout of the iMac, a product that revitalized Apple and revolutionized personal computer design. Before joining Apple, Jon built his career at computer companies including Hewlett-Packard, Stardent, and NeXT, and founded his own company, Firepower Systems Inc.

Jon is a member of the National Academy of Engineering and a senior member of the IEEE. He received bachelor's and master's degrees in electrical engineering from Cornell University and a master's degree in computer science from Colorado State University.

Dan Swinney

Member

DAN SWINNEY is executive director of Manufacturing Renaissance, formerly the Center for Labor and Community Research (CLCR). Dan founded CLCR in 1982 in response to the Chicago region's sudden loss of thousands of manufacturing companies and jobs. After 20 years of in-depth research, he led the creation of CLCR's Manufacturing Renaissance Council (MRC) development model and its implementation in Chicago and the San Francisco Bay Area. As executive director of the Chicago MRC, Dan founded Austin Polytechnical Academy, a nationally recognized public high school that prepares students for success and leadership in all aspects of advanced manufacturing. He also serves as executive director of the National Manufacturing Renaissance Council.

Prior to founding CLCR, Dan worked for 13 years as a machinist. He organized and served as vice president of the Steelworkers Local 8787 at G+W Taylor Forge in Cicero, Illinois, before the company closed in 1983. He holds a bachelor's degree in history from the University of Wisconsin.

Chad Syverson

Member

CHAD SYVERSON is the J. Baum Harris Professor of Economics in the Booth School of Business at the University of Chicago. He has been on the faculty at Chicago since 2001. His research spans several topics, with a particular focus on the interactions of firm structure, market structure, and productivity. He has published research articles in a variety of top academic journals; co-authored a textbook, *Microeconomics*; and has earned several National Science Foundation Awards, Olin Foundation Grants, and a Brookings Dissertation Fellowship.

Dr. Syverson is an editor of the *Journal of Industrial Economics* and an associate editor of the *Rand Journal of Economics*, *Management Science*, and the *Journal of Economic Perspectives*. He is a research associate of the National Bureau of Economic Research in the Productivity, Industrial Organization, and Environmental and Energy Economics Programs. He also serves on the board of the Chicago Census Research Data Center. Prior to these appointments, Dr. Syverson was a visiting scholar at the Federal Reserve Bank of Minneapolis and a mechanical engineer for Loral Defense Systems and Unisys Corporation. "What Determines Productivity?," *Journal of Economic Literature* (2011); "On the Network Structure of Production" (with Enghin Atalay, Ali Hortaçsu, and Jimmy Roberts), *Proceedings of the National Academy of Sciences* (2011); and "Reallocation, Firm Turnover, and Efficiency: Selection on Productivity or Profitability?" (with Lucia Foster and John Haltiwanger), *American Economic Review* (2008).

He earned two bachelor's degrees in 1996 from the University of North Dakota, one in economics and one in mechanical engineering. He earned a PhD in economics from the University of Maryland in 2001.

John J. Tracy

Member

JOHN J. TRACY is chief technology officer of The Boeing Company and senior vice president of Engineering, Operations & Technology.

Dr. Tracy reports to Boeing Chairman, President, and CEO Jim McNerney and is a member of the Boeing Executive Council. He leads Boeing's Engineering, Operations and Supplier Management functions, which include more than 100,000 Boeing teammates. He is also responsible for several companywide organizations including Test & Evaluation; Information Technology; Intellectual Property Management; Research & Technology; Environment, Health and Safety; and Enterprise Technology Strategy.

Dr. Tracy is a Member of the National Academy of Engineering and is an elected Fellow of several organizations including the American Institute of Aeronautics and Astronautics (AIAA), the Royal Aeronautical Society (RAeS), and the American Society of Mechanical Engineers (ASME). He also served as the chair of the ASME 6,000-member Aerospace Division.

Dr. Tracy joined Boeing in 1981, after serving as a high school teacher in Los Angeles. He holds a PhD in Engineering from the University of California-Irvine and received master's and bachelor's degrees in Physics from California State University-Los Angeles and California State University-Dominguez Hills, respectively.

Sharon Vosmek

Member

SHARON VOSMEK has been CEO of Astia since 2007, previously joining as COO in 2004. As CEO of Astia, Sharon has an unwavering passion and a uniquely well-suited background to drive forward the organization's mission of propelling women's full participation as entrepreneurs and leaders in high-growth businesses, fueling innovation and driving economic. Under her guidance, the Astia community of investors, entrepreneurs, and industry leaders has grown ten-fold and now spans North America, Europe, South America, and India.

Previously, Sharon founded SJ Vosmek & Associates and held management positions at American Express and in the office of US Senator Dennis DeConcini. Ms. Vosmek currently serves as founder and lead of the We Own It Collaboration, an effort of over 65 organizations globally committed to exploring women's participation in high-growth businesses and identifying solutions to move us forward. She also serves on the Advisory Board of StarVest Partners, the Stevenage Bioscience Catalyst Experts Advisor Group, and Illuminate Ventures Advisory Board. Formerly she served in Secretary Clinton's Private Sector Working Group to the APEC meetings and the City of San Francisco Mayor's Commission on Biotech (MayBAC).

Sharon has a master's in public policy and administration from the University of Wisconsin, Madison and a bachelor's in political science from Arizona State University.