

Under the Rust Belt

PAUL MARTIN SERIES ON
LEADERSHIP AND INNOVATION

Paul Martin Series on Leadership and Innovation

Thomas Bacher, Editor, *Under the Rust Belt: Revealing Innovation in
Northeast Ohio*

Under the Rust Belt

Revealing Innovation in Northeast Ohio

Thomas Bacher, Editor
Carol Slatter, Assistant Editor

With the assistance of Caitlyn Caldwell,
Matt Margo, Katelyn Mertz, and Emily Tara



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For Paul Martin

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Preface

Entrepreneurship

Deborah D. Hoover

For some time now, a robust interest in entrepreneurship has been growing at the youth, collegiate, and adult levels in Northeast Ohio. At the youth level, thousands of students in schools and youth groups across the region participate each year in programs such as Camp Invention or Lemonade Day, two of the country's preeminent innovation and entrepreneurship programs for elementary school children. Lemonade Day allows them to explore entrepreneurship through the timeless first commercial experience for most young people—starting and running a lemonade stand—while Camp Invention utilizes STEM and entrepreneurship curricula that offer students the opportunity to think critically, problem solve, and work in a team. Middle and high school students are able to join in academic programs offered at their respective schools as well as participate in nationally renowned free enterprise programs such as Junior Achievement.

At the adult level, the philanthropic collaborative, the Fund for Our Economic Future, paved the way over the last decade for entrepreneurial support organizations such as BioEnterprise, NorTech, and JumpStart to help aspiring entrepreneurs boost their innova-

tions and ventures to the next level and thus positively impact the Northeast Ohio economy. For our region, this transition from Rust Belt to a growing, vibrant economy will not be sustainable without the dedication and perseverance of young entrepreneurs.

Interest is accelerating among the throngs of college students eager to learn about the entrepreneurial mind-set and even to start their own business venture. Every year, thousands enroll in courses, take part in idea competitions or other cocurricular activities, and participate in internship programs. Incredibly, almost every college or university in Northeast Ohio, from large state universities to small liberal arts colleges, is offering some type of entrepreneurship program. Many of the area's collegiate institutions have also come together to form the Entrepreneurship Education Consortium—its programs for young entrepreneurs have been nationally recognized by the United States Association for Small Business and Entrepreneurship (USASBE).

Five colleges (Baldwin Wallace University, Hiram College, Lake Erie College, Oberlin College, and the College of Wooster) participated in the funding partnership begun by The Burton D. Morgan Foundation and the Ewing Marion Kauffman Foundation seven years ago, the Northeast Ohio Collegiate Entrepreneurship Program (NEOCEP). NEOCEP inspired young people, opening the door of entrepreneurship to thousands of students at small colleges eager to try their hand at running a fledgling business. At Oberlin College, for example, recent graduates compete to land yearlong fellowships to start their own ventures. Several ventures begun at the outset of the program have seen great success, including Inkren, a technology company that developed software to help students learn Chinese and Japanese characters and received follow-on support from the Innovation Fund of Lorain County Community College. Students at the College of Wooster (COW) have worked as entrepreneurship interns in a variety of capacities at ABS Materials, a company launched by a COW chemistry professor, leading to full-time positions.

Blackstone LaunchPad, a collaboration between The Blackstone Charitable Foundation of New York and the Morgan Foundation, will allow over seventy-two thousand students in Northeast Ohio to have the opportunity to start their own business. Baldwin Wallace University, Kent State University, Case Western Reserve University, and Lorain County Community College will be participating in this new initiative based on a very successful cocurricular program started at the University of Miami. Students will receive one-on-one counseling with trained consultants at their colleges and many benefits later from venture coaching by volunteer professionals. These programs, groups, and institutions together form an extensive collegiate entrepreneurial ecosystem that collectively coordinates business plan competitions, internship experiences, and an immersion week providing rich experiential opportunities for the region's students. We are also fortunate to have a number of resources available to assist student entrepreneurs as they transition from collegiate entrepreneurship programs to business accelerators and incubators such as MAGNET and Shaker LaunchHouse.

The Burton D. Morgan Foundation has been supporting young entrepreneurs in our region for several decades. This would not be possible, of course, without the foresight Mr. Morgan had in creating the foundation that bears his name and recognizing the need for the region to support aspiring entrepreneurs. The trustees of the foundation believe its definition of entrepreneurship, "the process of identifying and developing a new economic venture or solution that adds value, embodies innovation and creativity, and involves risk to its initiators," clearly conveys what future entrepreneurs might be inspired to achieve through their work. Similarly, our mission is straightforward and simple: "To strengthen the free enterprise system by investing in organizations and institutions that foster the entrepreneurial spirit." This mission crystallizes our vision to perpetuate a "free enterprise society of economically independent citizens who support the entrepreneurial spirit and contribute to the improvement of their communities."

Ultimately, we hope the stories shared in this book will inspire others to get involved in the movement to reinvent our economy. Through the mentorship of young people, we will strengthen our nation's natural inclination to create and grow innovative ventures and to excel in entrepreneurial thinking. The introduction of the entrepreneurial mind-set to young people and the creation of enticing pathways help to guide students to pursue increasingly challenging opportunities and goals. After all, entrepreneurial success is at the very roots of our great nation and is key to ensuring the health and vitality of our economic future. Our collective work in Northeast Ohio serves as a laboratory for reimagining a national identity based on capturing the verve of the entrepreneur and translating innovative ideas from concept to reality.

Introduction

Thomas Bacher

As a child growing up in a blue-collar neighborhood of Cleveland, I have memories of a three-shift transmission manufacturing plant bellowing out smoke from its stacks at the end of Stumph Road. Machine shops and other industries dotted the area around the plant employing thousands of workers. Neighborhoods grew, schools were filled, and restaurants were packed for all-you-could-eat fish fries during the Lenten season.

The story of the decline in the area's manufacturing prominence has been well told. Population and local tax revenue went elsewhere. The Rust Belt was born.

This particular volume is not meant to provide complete answers for the area's rebirth. Those answers are as varied as the many ethnic populations in greater Cleveland and Northeast Ohio. Zeal and innovation, however, are traits that can become dynamic forces in a new Northeast Ohio, one in which start-ups can spur economic growth.

This collection was several years in the making. At the start, the idea was to ask area innovators the following questions:

- Since innovation depends on ideas, how do you go about generating new ideas? Do you use a specific process?

- As an entrepreneur, what motivated you to work in the specific field you chose?
- How does the concept of “risk” play a part in your decision-making process?
- Did you fail before you succeeded?
- In what respects were you least prepared and in what respects most prepared for your venture?
- To what extent was your venture a technology, product, or service initially seeking a market, or a market seeking a solution or provider?
- What were the major barriers you encountered and how did you overcome them?
- Did your effort require outside capital, and if so, what was your experience in obtaining such financing?
- Did any specific areas of your education play a part in how you decided to approach your venture?
- Do you think aspects of your background or upbringing, outside of education, played a large role in your entrepreneurial activity?
- Some economists have said that for sustained growth, a supply of entrepreneurs needs to be developed. How can this be done?
- What was and is your primary motivation as a pioneer in your field?
- How can the Northeast Ohio region better support innovation and entrepreneurship?
- What would you tell an aspiring innovator?

The study is not exhaustive and should be viewed as a starting point to better understand Northeast Ohio and what the area can offer to innovators and entrepreneurs. During the late 1800s and early 1900s, settlers and pioneers were starting business in what was then known as the Western Reserve. The first rubber cord bicycle tire was manufactured in Akron in 1892 and the first nonskid automobile tire was patented in Akron in 1914. The first electric arc lights were installed in Cleveland in 1879 and first electric traffic signal was installed at the corner of Euclid Avenue and East 105th Street in 1914. In the early 1880s, a group of forward-thinking Youngstown-

nians set up the Humanitarian Invention Association to develop the inventive genius of the area. Hopefully, Northeast Ohio can once again become a stimulating environment for new entrepreneurs and new technologies.

Part I

Northeast Ohio, Culture, and Economic Climate

Cleveland and the Region

A Planning Perspective, 2000–2014

Norman Krumholz and Kathryn Wertheim Hexter

The turn of the twenty-first century saw progress on several fronts. The city's first female mayor, Jane Campbell (2002–2006), hoped to use her control of the long-neglected public school system to reform and improve its operations. This concern was echoed by her successor, Frank Jackson, the city's third African American mayor who was first elected in 2006 and remained mayor in 2014. The city prepared and adopted a lakefront plan, with new beaches, miles of bike trails, marinas, and new neighborhoods. The business community sought to build a new convention center to replace an outmoded one. The Greater Cleveland Regional Transit Authority (RTA) began planning a bus rapid transit line along Euclid Avenue from downtown to University Circle, Cleveland's commercial spine. Planners hoped to control regional sprawl which they believed was sucking population, jobs, and investment out of the core city. Neighborhood revitalization was beginning to achieve significant progress, led by a group of neighborhood-based community development corporations, the Cleveland Housing Network, and several intermediaries that had become national models.

Over the decade, the city achieved many of its objectives. RTA completed the rebuilding of Euclid Avenue and its new bus rapid

transit system, a \$200 million project largely financed by the federal government. For the first time in decades, private development began to flow back toward Euclid Avenue. Much of that development focused on a building boom in University Circle, home of Case Western Reserve University, the city's major museums, the Cleveland Orchestra, and two major hospitals. The Cleveland Clinic became one of Ohio's largest hospitals and employers. University Circle continued to be one of the region's most important employment centers along with downtown. A new \$450 million convention center, funded by a countywide sales tax on the mall opened in June 2013, creating anticipation for more conventions and more tourists.¹ The complex features a Global Center for Health Innovation which hopes to attract medical groups and take advantage of Cleveland's prominent health care sector. Cuyahoga County broke ground in 2014 for a new, publicly financed convention hotel adjacent to the center. Following approval in a statewide 2008 election, a new casino, the first in Cleveland's history, opened in an extensively remodeled department store on Public Square. City, county and state tax revenue generated by the casino was less than promised but helped to partially offset severe budget cuts at the federal and state level.

A major upheaval changed the form of government of Cuyahoga County. County residents, who had been governed by three county commissioners for close to two hundred years, overwhelmingly voted in 2009 to end the commissioner form and replace it with an elected county executive and a county council. This followed revelations of extensive corruption throughout the commissioner system which ended with one commissioner, other officials, and developers in jail. Presumably, the new government structure will be more honest, representative, and transparent than the old.

Small steps were taken toward a more regional approach to planning and economic development. Several inner suburbs began facing the problems that had challenged Cleveland for many years: population out-migration, rising levels of poverty, and inadequate local tax revenues. In response, the sixteen inner suburbs of Cleveland

formed the First Suburbs Consortium in 1997. Its purpose was to counteract sprawl in the metropolitan region and to lobby and advocate for changes in state policies to provide more assistance to older suburbs.² Other attempts to facilitate cooperative regional decision making include: the Fund for Our Economic Future, a regional effort to stimulate economic growth and retain jobs, and the Northeast Ohio Sustainable Communities Consortium, a group of thirty-two organizations from across twelve counties that have come together to encourage regional land use planning. A federal grant provided the incentive for this unprecedented planning effort. The Northeast Ohio Areawide Coordinating Agency (NOACA) continues to serve as the five-county agency for transportation planning as it has for the past forty years.

In 2010, downtown Cleveland realized the first signs of population growth in decades. From 1990 to 2010 the downtown population grew 96 percent from 4,561 residents to 9,098 residents. Furthermore, residential occupancy tended to remain at just over 95 percent. Additionally encouraging, this population seems to be weighted with highly educated young adults in the 22–34 age range. These residents are more likely to be positioned well in the new knowledge-based economy of the era. A few of Cleveland's other neighborhoods, including Ohio City, Tremont, and Detroit Shoreway are also experiencing a net in-migration of 25–34 age range. This is important to note considering that the city as a whole is still losing residents.³ This may indicate that downtown, Ohio City, and Tremont's efforts to brand themselves as great places for young professionals to live have been successful. Even more encouraging, between 2000 and 2012, the Cleveland metro area logged a net gain of about sixty thousand people 25 and over with a college degree while losing a net of seventy thousand of those without a bachelor's degree. Half emigrated from out of state.⁴ The Downtown Alliance and the Community Development Corporations (CDCs) of Ohio City and Tremont emphasized assets like historic housing stock, urban excitement, and trendy retail.

Contributors

Rebecca Bagley is President and CEO of NorTech, a technology-focused organization that strengthens Northeast Ohio's economic vitality by accelerating the pace of innovation in the region. Under her leadership, NorTech is using its emerging industries expertise to foster an innovation environment that provides companies, research institutions, and individuals of diverse backgrounds with new opportunities for collaboration that create jobs, attract capital, and have long-term, economic impact.

A nationally recognized expert in technology-based economic development, Bagley connects with business leaders, policy makers, and other influencers to raise the visibility of Northeast Ohio's technology assets, position the region as an innovation hub, and attract resources.

Before joining NorTech in 2009, Bagley served as Deputy Secretary for the Technology Investment Office of the Pennsylvania Department of Community and Economic Development (DCED). She previously was Director of the Venture Investment for DCED and has worked for several investment banks, most notably JPMorgan Chase.

Richard J. Batyko has over twenty years of Fortune 100 and non-profit communications, marketing and brand management experience. Currently he is serving as President of the Regional Market-

ing Alliance of Northeast Ohio. In this role, Batyko is leading corporate, civic, and foundation-backed effort to market the Northeast Ohio region, including Cleveland, Akron, Canton, and Youngstown, to external and internal audiences. Batyko has served as director of Communications for Babcock & Wilcox; as a director of Communications and Brand Management for AlliedSignal, as manager at e-Media and News Management at Honeywell International, and as Vice President for Marketing & Communications at The Cleveland Foundation. He is a graduate of Ohio University's E. W. Scripps School of Journalism, holds his accreditation with the Public Relations Society of America (PRSA) and earned his Master of Public Relations from Kent State University. In 2009, he was inducted into PRSA's prestigious College of Fellows. He has been a speaker at national professional association conferences on topics including media relations, branding, marketing, public relations, and social media. He has been published in the Public Relations Journal and has contributed to academic works and texts, most recently to an ABC-CLIO book on advertising.

Ronald Bucci is currently the Administrative Director of the MetroHealth System in Cleveland, OH. Concurrently, he is adjunct faculty at Walsh University, University of Phoenix, Walden University, and Colorado Technical University. He has just published his first book called *Medicine and Business* from Springer Publishers. He is the previous Interim Vice President of Professional/Support Services and Administrative Director of Radiology at Akron Children's Hospital. Prior experiences were as Director of Imaging at Prexus Health—a health care delivery system based in Cincinnati—President and CEO of QuickClinic and PET of Ohio. He received a Bachelor of Science in Allied Health, Radiologic Technology from The Ohio State University, an MBA from the University of Pittsburgh, and a PhD in Healthcare Administration from Southern California University of Professional Studies. Bucci is currently enrolled in the Six Sigma/Lean Training Program.

Mike Burkons attended Connecticut College and went on to receive a law degree from the Cleveland-Marshall College of Law. While at Connecticut College, the idea for his company came one day when two Catholic nuns were offering a hole-in-one contest at a local golf course. After four months of developing and planning, Burkons produced his hole-in-one technology. Once installed on a golf course, a golfer can purchase a ticket to try his luck at hitting a hole-in-one at a hole with the Charitee Hole-in-One Monitoring System. If the golfer succeeds, he will win \$1000 and the course's youth golf efforts will receive \$500.

Miko Cakmak is Harold A. Morton Chair and Distinguished Professor of Polymer Engineering at The University of Akron. His area of expertise is on identification, modeling, and simulation of complex structural mechanisms that take place during the course of polymer processing operations of wide range of polymers subjected to solution, melt as well as rubbery state deformation. He also develops novel processes for products in the optics, electronics, and biomaterial device fields. Current activities are focused on real time measurements of true mechano-optical and mechano-electrical properties of polymers undergoing flexing, uni and biaxial deformation for optics and flexible electronics applications. He is actively developing novel processes to address the needs of emerging markets. Towards this goal, his group recently developed a hybrid electrospinning/solution casting multipurpose processing platform to produce functional polymer films including conductive transparent flexible and stretchable films for flexible electronics. Additionally he designed and constructed pilot R2R machine that applies electric, magnetic, thermal fields to orient particles and phases in "Z" direction (normal to the film plane) to produce films for functional applications including separation membranes and wide range of devices. All these near commercial scale machines are located at brand new National Polymer Innovation Center at The University of Akron dedicated to roll-to-roll manufacturing of functional polymer films.

Thomas V. Chema was the President of Hiram College from 2003 to 2014. A native of East Liverpool, Ohio, Chema was a 1968 graduate of the University of Notre Dame and a 1971 Cum Laude graduate of Harvard Law School. He began his career with the Cleveland-based law firm of Arter & Hadden in 1971 and became a partner in 1979. He took a leave of absence in 1983 to serve as Executive Director of the Ohio Lottery Commission. In 1985, he was asked to become Chairman of the Ohio Public Utilities Commission. In 1990, he was appointed Executive Director of the Gateway Economic Development Corporation and was responsible for overseeing the public/private partnership that led to the financing and construction of Progressive Field and Quicken Loans Arena in Cleveland. He then resumed his law practice and in recent years has consulted across the country on sports and entertainment-related economic development projects as President of Gateway Consultants Group, Inc. Chema is recognized as an expert on energy and telecommunications economics and regulation, infrastructure planning, and developing public/private partnerships. He has published numerous articles on these topics and frequently lectures throughout the country, including assignments at the Graduate School of Design at Harvard University.

Shon Christy's passion for driving online buzz combined with almost twenty years of marketing experience, came Christy Creative, Northeast Ohio's first niche, full-service social media marketing agency was born. Clients in the retail, consumer goods, service and health care industries have turned to Christy for his expertise in crafting strategic social media messaging that monetize the web. Christy sold the firm at the end of 2013 and has recently started a new firm, Focal Point Social Media, with his partner Mark Krohn from venture capital company Acquire Investments. Christy's marketing portfolio includes well-known brands such as Bacardi, Jack Daniels, and Buffalo Wild Wings. His work has been featured in *Inside Business*; *Smart Business*; the *Akron Beacon Journal*; and the *Young Professional Roadmap*. Ever the entrepreneur, Christy has launched

Beckett's Buddies, a fundraising group to support those with Down syndrome in honor of his three-year-old son Beckett. Equally passionate about philanthropy as he is about digital marketing and social media, Shon has an impressive track record of community service. He regularly donates a portion of his company revenues to the Upside of Downs, a nonprofit advocacy for individuals with Down syndrome in NE Ohio. A member of The Rotary Club of Akron, Christy serves as the president, and has served as the Chili Open cochairman, PR chairman, and president-elect. Additionally, he serves on the Board of Stand Up for Downs, United Disability Services, The LuMind Foundation (Down syndrome cognition research) and The Rotary Camp for Children with Special Needs. Lastly, Christy is extremely involved in the United Way of Summit County as a member of the Young Leaders Society and the Tocqueville Society where he also serves on the cabinet. Recently, Christy Creative was bestowed with the Greater Akron Small Business Councils Excellence in Business: Emerging Business award, the Distinguished Sales and Marketing Executive Award from SMEI, and is a member of the 31st class of Leadership Akron. In 2012, the Greater Akron Chamber of Commerce Young Professionals Network recognized Christy with the prestigious 30 For the Future award for his community service and business leadership. He is always seeking ways in which to give back to the Akron community and is fully committed to staying current on social media and digital marketing trends.

Christopher Clark is the founder of a Cleveland-based organization, Sunflower Solutions, whose claim to fame is the world's only solar tracker designed for use in remote and developing areas, known as the emPower Plant™. Using this technology, Sunflower—founded in 2009—aims to improve the lives of men, women, and children around the world by helping bring them electricity, acting in terms of his belief that improving solar power will then improve education, health care, clean water, economic growth, and agriculture. Clark, an interdisciplinary Business Management graduate of Miami

University of Ohio, created this technology through a senior capstone project. Today, Sunflower Solutions, founded in 2009, has over a dozen installations in six countries, including Kenya, India, Nigeria, Rwanda, Togo, and the US.

Stavros T. Constantinou is an Associate Professor of Geography at The Ohio State University, Mansfield Campus. His interests include the study of migration and ethnicity from the quantitative point of view. His published research includes two major studies on emigration from Greece to the United States and emigration from Cyprus to the United Kingdom (with Nicholas D. Diamantides) as well as a study of Greek American ethnic identity (with Milton E. Harvey). In addition to survey data, he has used census and church records to examine the changing spatial dimensions of Greek populations in the United States.

Charis Eng is the founding chair of the Genomic Medicine Institute at the Cleveland Clinic, founding director of the institute's clinical component, the Center for Personalized Genetic Healthcare, and Professor and vice chairman of the Department of Genetics and Genome Sciences at Case Western Reserve University School of Medicine. She was honored with the Sondra J. and Stephen R. Hardis Endowed Chair in Cancer Genomic Medicine in 2008 and the American Cancer Society Clinical Research Professorship in 2009. More recently, she was elected to the Institute of Medicine of the US National Academies of Sciences for her achievements and leadership in genetics- and genomics-based research and personalized health care. Eng's research has been acknowledged as the paradigm for performing cancer genetics research which can be brought to clinical practice. At the clinical interface, she is acknowledged as one of the rare "go to" people on what is and how to implement genetic- and genomics-enabled personalized health care.

John M. Finley II is chairman and CEO of MemPro Materials Corporation. He is also managing director of CLEVECAP LLC (an investment banking firm) and chairman of 2Dme Inc (a video communications company). He has been an investor and advisor to

entrepreneurs on capital and market development strategies since 1981. He is a graduate of St. Lawrence University with a BS in Physics, the University of Rochester with an MBA, and the Quartermaster School of the US Army from which he holds an honorable discharge. Before founding MemPro, CLEVECAP, and 2Dme, he had a career in corporate finance and was CEO of Oxygen Enrichment Company (medical products) and Membrane Products Corporation (filtration products). He has collaborated with major research universities and national laboratories in product development and technology transfer. Finley was the founding president of the Chief Executives Network for Manufacturing (Albany, NY), vice president and president of the St. Lawrence Alumni Executive Council, trustee of St. Lawrence University, volunteer for the Snowboard Outreach Society and the Alpenglow Chamber Music Festival.

Thomas A. Finnerty is the Associate Director of the Center for Urban and Regional Studies at Youngstown State University. Finnerty earned his BA in Geography from Youngstown State University and his MA in Geography from The University of Akron. He is an adjunct faculty member at YSU. While at the Center, he has directed and participated in numerous grant projects, planning exercises, feasibility studies, and other projects for the city of Youngstown and other local governments throughout the Mahoning Valley region.

Hiroyuki Fujita, a Japanese national who came to Cleveland in 1992 to attend Case Western Reserve University (CWRU), is founder, president and CEO of Quality Electrodynamics (QED), a company in Mayfield Village that manufactures and sells state-of-the-art MRI coils worldwide. In 2009, *Forbes* magazine designated QED as one of the 20 Most Promising Companies in America. In 2010 and 2011, *Inc. Magazine* named Fujita as one of the top entrepreneurs in America and placed QED in the *Inc 500*, calling it one of America's fastest growing companies. Also in 2010, Fujita won the Ernst & Young Entrepreneur of the Year Award Northeast Ohio in the category of Industry Manufacturing. In recognition of growing a

successful high-tech manufacturing company and creating high-tech, advanced manufacturing jobs in the health care sector in the United States of America, President Barack Obama and First Lady Michelle Obama invited Fujita to be an honored guest at the 2012 State of the Union Address, and to sit in the First Lady's Box.. Today, Fujita is an Adjunct Professor of Physics, Radiology and Electrical Engineering at CWRU and at The University of Queensland, Australia. In 2013, Fujita was named one of the twenty-six US Manufacturing Council members, advising the US Secretary of Commerce, and serves on various boards. He holds sixteen patents and has published more than thirty papers and abstracts in respected engineering, imaging and physics journals. Fujita has received numerous awards from state, national, and international governments for his excellence in imaging technology and manufacturing, including the 2013 Presidential award for export, E-Award, from the US Department of Commerce. Nikkei Business named Fujita as one of the most influential 100 people for Japan in 2014.

Kathryn Wertheim Hexter directs the Center for Community Planning and Development, Maxine Goodman Levin College of Urban Affairs, Cleveland State University. She joined the Levin College in 1986. A planner and public policy analyst, Hexter has over twenty-five years of experience managing and directing projects and evaluating programs in the areas of community development, housing, mortgage foreclosure, neighborhood development, sustainable development, low-income energy assistance, city and regional planning, and civic engagement. She has worked extensively with federal, state, and local governmental, philanthropic and nonprofit organizations. She recently completed a study "Revitalizing Distressed, Older Suburbs" for the What Works Collaborative of the Urban Institute <http://www.urban.org/what-works-collaborative.cfm>. She is the founding director of the Levin College Forum Program, a community engagement and education program, recognized by *Northern Ohio Live* (2005) as "a springboard for eco-

nomic and social progress throughout the region.” Hexter holds a master’s degree in City and Regional Planning from Harvard University. Prior to joining the College she worked in community and governmental relations for the East Ohio Gas Company and as a planning consultant.

Deborah D. Hoover has served since 2007 as president and CEO of The Burton D. Morgan Foundation, a private foundation dedicated to fostering entrepreneurship in Northeast Ohio.. Hoover was instrumental in establishing the Foundation’s Northeast Ohio Collegiate Entrepreneurship Program, a Kauffman CampusesSM Initiative, to spread entrepreneurship across liberal arts campuses; and in bringing the Blackstone LaunchPad Program to the Northeast Ohio region in partnership with The Blackstone Charitable Foundation. She serves as chair of the Fund for Our Economic Future, a philanthropic collaborative created in 2004 to advance the economic competitiveness of Northeast Ohio. In April, 2014 she was elected to the Board of The Foundation Center, the leading source of information about philanthropy worldwide. Hoover serves on the Board of Trustees of Western Reserve Academy and is a member of the National Council for The Norman Rockwell Museum in Stockbridge, Massachusetts. Hoover earned her BA from Williams College and a Masters in the History of Art from the University of Chicago. She continued graduate studies at George Washington University National Law Center where she earned a JD degree and was a member of the Law Review. She is a member of the bar in the District of Columbia, New Hampshire, and Ohio.

Marjorie Carlson Hurst has had an interesting and varied career. It began in 1974, when she was hired by Ohio Bell Telephone Company as Ohio’s second female lineman. She went on to spend twenty-five years with AT&T in sales and marketing management. In 2000, Carlson Hurst transitioned to a second career in academics. She is the Dean of the School of Business & Leadership at Malone University. She has been responsible for launching new

programs, improving quality, and major accreditation efforts. She encourages staff, students, and faculty to grow to their maximum potential and see beyond the obvious. Carlson Hurst has a BA from Malone University, an EMBA from Baldwin Wallace College, and a doctorate in Business Administration from Nova Southeastern University in Fort Lauderdale.

Damir Janigro is a Professor of Molecular Medicine and Director of Cerebrovascular research at the Cleveland Clinic. He was born in Croatia but received most of his higher education in Milan, Italy where he obtained a PhD in Physiology and Biophysics in 1982. After postdoctoral training at Karolinska in Stockholm and at the University of Washington in Seattle, he became Assistant Professor of Neurological Surgery in 1989. He remained at the University of Washington as Associate Professor until 1999. Janigro has served as chairman for the Brain 1 study sections of the American Heart Association, as chair of the Department of Defense Epilepsy panel, and has been a permanent member of two NIH reviewing panels. He received numerous multiyear NIH grants which led to the discovery of patented technologies in the field of blood-brain barrier research. He has also received funding from the Department of Energy and private companies in the US and abroad. He is the cofounder of Flocel, Inc., a NEO start-up company, and holds numerous patents related to biomedical diagnostics.

Mitchell Kahan is director emeritus of the Akron Art Museum, where he was director and CEO from 1986 to 2013. He holds a PhD in Art History from City University of New York Graduate School, and bachelor's and master's degrees from University of Virginia and Columbia University, where he studied architectural history and art history. Since the 1970s, Kahan has written and lectured extensively on twentieth century American art, including the history of corporate collecting, folk art, art of the 1930s, and contemporary art. He has been awarded fellowships from the Smithsonian Institution and the National Endowment for the Arts and has served on advi-

sory panels for local, state, and federal arts agencies. In 1984, he was a guest curator for the Louisiana World's Fair. He is a past president of Akron Roundtable, Akron Area Arts Alliance and Ohio's Inter-museum Conservation Association and is a former trustee of the Association of Art Museum Directors, an organization representing Canada, Mexico, and the United States. He is the coauthor of a book on the collection of the Akron Art Museum and was honored with the Distinguished Museum Professional Award for 2003 by the Ohio Museums Association. In 2008, he was granted the Robert P. Bergman Award from the Cleveland Arts Prize and the Non-profit Leadership Award from Case Western Reserve University's Mandel School for Nonprofit Management.

Joseph Kennedy's contributions to rubber science and technology are vast, particularly in the fields of carbocationic polymerizations, rubbery biomaterials, and macromolecular design and engineering. Kennedy received the equivalent of a BS in Chemistry from the University of Budapest in Hungary in 1948, earned his PhD in Biochemistry at the University of Vienna in Austria in 1954, and an MBA from Rutgers University in 1961. He was a postdoc at McGill University and at the Sorbonne. He came to The University of Akron in 1970, playing a fundamental role in the development of the College of Polymer Science & Polymer Engineering, now ranked as the #2 graduate academic program in Polymer Science in the nation. Kennedy is author to four books, over seven hundred refereed publications in top journals, and has over one hundred issued US patents. Some of his awards include two American Chemical Society Awards, one in Polymer Chemistry (1985) and one in Applied Polymer Science (1995), and the Rubber Division's George S. Whitby Award in 1996 for excellence in teaching and research, the Goodyear Medal (2008), Fellow of the American Chemical Society (2010), Charter Fellow of National Academy of Inventors (2013), Honorary Doctorates from the University of Budapest, and The University of Akron. Kennedy has trained more than

one hundred fifty students and postdoctorals who became successful industrial leaders or professors internationally. His mentorship is unparalleled. Currently in his 80s, he is still active and in his office every day inventing/developing new rubbers.

Norman Krumholz is a professor in the Levin College of Urban Affairs at Cleveland State University. He is a past president of both the American Planning Association (APA) and the American Institute of Certified Planners (AICP). Prior to his joining the faculty at CSU, Krumholz served as planning director of Cleveland for ten years. Krumholz has written or edited five books on planning and urban neighborhoods and has published in many professional journals. His book *Making Equity Planning Work*, with Professor John Forester, won the Paul Davidoff award for best progressive book of the year from the Associated Collegiate Schools of Planning. Krumholz's equity planning practice in behalf of the poor and working class people of Cleveland has become a national model for planners in other large cities who are struggling to retain their industrial and economic base while making their neighborhoods more livable.

John Lauletta is CEO/CTO of Exacter, Inc., and has been involved in electric utility measurement technology since 1975. Lauletta's career includes ten years with American Electric Power as Measurements Manager, fourteen years as VP at Scientific Columbus and most recently as CEO/CTO of Exacter, Inc. Lauetta holds engineering degrees from The Ohio State University and Purdue University and is the past chair of the Central Ohio Power Engineering Society Chapter of IEEE. Lauetta has several patents in predictive failure technologies. Exacter, Inc. is a developer of predictive technologies for electric utility reliability, grid conditions-based assessment, and preventive maintenance.

Thomas A. Maraffa received his bachelor's, master's, and PhD degrees in Geography from The Ohio State University. He recently retired as a faculty member at Youngstown State University where

he served since 1985. Between 1980 and 1985 he was an assistant professor of geography at Virginia Tech. His research and teaching interests have been in economic geography particularly transportation and commuting. He has been active in geographic education and currently serves as cocordinator of the Ohio Geographic Alliance. While at Youngstown State, Maraffa served as chairperson of the department of geography from 1992 to 2002 and in the chief of staff role in the Office of the President between 2002 and 2010.

Michael Mariola has had a lifelong interest in great food, beginning at the earliest of ages with the hearty home-style cooking of his French mother. He started in the restaurant business at the age of fourteen, first working in the kitchen of The College of Wooster, then, after graduating high school, at Ray's Place in Kent, Ohio. He returned to Wooster for a position in the kitchen at The Wooster Inn, and, from there, was hired as a prep cook by renowned chef Parker Bosley, of Parker's Restaurant and Bistro Bar in Cleveland. Within six months, Mariola was promoted to Sous Chef, running the kitchen. During his time, he was also encouraged to serve internships under the esteemed French chefs Christian Constant at Le Violon d'Ingres in Paris and Michael Richard at Citronelle in Washington, DC. In July 2002, Mariola opened the South Market Bistro in downtown Wooster, and in September 2008, opened the Square Steakhouse. In the summer of 2011, Mariola opened a gourmet burger bar called The Rail, located at Summit Mall in Akron, OH. In addition to his restaurant building and operating experience, he has also neared completion of the renovation of the historic downtown Wooster Gold Star Building: a sixteen thousand square foot building that houses The South Market Bistro, Spoon Market and Butcher, offices, and newly constructed loft apartments. Mariola is an active member of the Wooster community, currently serving on the Main Street Wooster Board of Directors as well as the College of Wooster Center for Entrepreneurial Studies Board. He lives in Wooster along with his wife and four children.

Steven Marks and partner, Harvey Nelson, founded Main Street Muffins (now Main Street Gourmet) in 1987, and since then, were chosen by *Inc. Magazine* and Ernst & Young as the 1993 Entrepreneurs of the Year Award for Northeastern Ohio. Senator John Glenn selected Marks as his sole choice to be a delegate for the 1995 White House Conference on Small Business. In 1994 and 2011 the US Small Business Administration selected the partners as the Small Business Person(s) of the Year. The University of Akron has also recognized Marks with the 1999 Simonetti Distinguished Business Alumni Award, the 2000 Outstanding Beta Alpha Psi Alumnus Award and the 2006 University of Akron Alumni Honor Award. Steve is also the founder of the Akron Marathon, launched in 2003 by a family foundation he started. In 2005, the Akron Marathon was recognized as one of the 50 Greatest US Marathons. Main Street Gourmet founded an award-winning program with Akron General Medical Center called Muffins for Mammograms, designed to raise money for women who cannot afford breast cancer screening costs. To date, the program has raised more than \$250,000. Community involvement currently includes participating as a board of trustee member for the Greater Akron Chamber and chairman of The Akron Marathon Charitable Corp.

D. Kirk Neiswander is the Founder and President of The Entrepreneurs EDGE, a nonprofit organization founded in 2005 that focuses on innovation, entrepreneurship, economic development, and midmarket companies—all in Northeast Ohio. Before taking part in this business endeavor, he was an officer of Enterprise Development, Inc., and had a more than twenty-two-year career at Case Western Reserve University, where he created many new courses, conferences, retreats, breakfast series, recognition events, networking events, and specialized services for midmarket companies. He has an MBA from the Weatherhead School of Management at Case Western Reserve University in General Management, and a BA from Denison University in Mathematics/Economics.

George R. Newkome received his BS and PhD in Chemistry from Kent State University and was a postdoctoral fellow at Princeton University before joining Louisiana State University where he became a full professor in 1978, and LSU Distinguished Research Master in 1982. In 1986, Newkome joined the University of South Florida as their first Vice President for Research with a faculty appointment in chemistry and was named Distinguished Research Professor in 1992. In 2001, he became Vice President for Research and Dean, Graduate School at The University of Akron, the Oelschlager Professor of Science and Technology, and professor in the departments of Polymer Science and Chemistry. He is the President and CEO of the University of Akron Research Foundation as well as a Fellow in the AAAS, Royal Society of Chemistry, and National Academy of Inventors. He has published over 470 papers, sixty issued patents, and edited/written over twenty scientific books and monographs.

Luis Proenza was the president of The University of Akron from 1998 to 2014. During his tenure, the University financed \$620 million in capital construction to completely transform its campus, adding twenty-one new facilities, eighteen major renovations and additions and thirty-four acres of new green space, thereby becoming one of the most attractive metropolitan campuses in the nation. Proenza also led community efforts to create two key enterprises: a University Park Alliance that is revitalizing a fifty-block area surrounding its campus, and the \$200 million Austen BioInnovation Institute in Akron, a partnership with three area hospitals and a medical school to establish Akron as a center for biomaterials and biomedicine. These and other initiatives have distinguished the University nationally and internationally and have made UA a recognized national model for technology commercialization, economic development, and corporate and community partnerships.

In 2001, President George W. Bush named Proenza to the President's Council of Advisors on Science and Technology, the nation's highest-level policy advisory group for science and technology.

Proenza cochaired PCAST's committee on Public-Private Partnerships and worked on panels on US Research and Development Investments, Technology Transfer, Alternative Energy, Energy Efficiency and Advanced Manufacturing, Personalized Medicine, Information Technology, and Nanotechnology. In 2004, the Secretary of Energy appointed him chairman of the Science and Mathematics Education Task Force and, later, to the Secretary of Energy Advisory Board.

Proenza earned his BA from Emory University (1965), his MA from The Ohio State University (1966), and PhD from the University of Minnesota (1971).

Judit E. Puskas received a PhD in plastics and rubber technology in 1985, and an MEng in organic and biochemical engineering in 1977, from the Technical University of Budapest, Hungary. She started her academic career in 1996, and has since been published in more than 370 publications, including technical reports. She is an inventor or coinventor of thirty-one US patents and applications. She has been awarded seven NSF grants, including a Phase II SBIR and an AIR award in this year totaling \$1.5 million. She received her first NIH grant (the first ever in the Department of Polymer Science) in 2010. She is the recipient of several other awards, including the 1999 Professional Engineers of Ontario, the Canada Medal in Research and Development, a 2000 Premier's Research Excellence Award, the 2004 Mercator Professorship Award from the Deutschen Forschungsgemeinschaft, German Research Foundation, the LANXESS (previously Bayer) Industrial Chair 1998–2008, the 2009 Chemistry of Thermoplastic Elastomers Award of the Rubber Division of the American Chemical Society, the Woman of Achievement Award and the 2014 UA Outstanding Researcher Award. She was elected Fellow of the American Institute of Medical and Biological Engineering in 2010, and Fellow of IUPAC in 2013. As a coinventor of the polymer used on the Taxus® coronary stent, Puskas helped The University of Akron generate more than \$5 million in license fees. Puskas and her business partners have founded spin-

off companies to market some of her new polymers. She was named the Joseph M. Gingo Chair in Chemical Engineering in June 2014.

Majid Rashidi received his PhD in 1983 and BSME in 1981 from Case Western Reserve University. Following his graduation in 1986, Rashidi worked at NASA for the Institute of Computational Mechanic in Propulsion. In fall of 1987, he started a tenure-track position in the Mechanical Engineering Department at Cleveland State University, and was promoted to the rank of Professor in 2008. Additionally, Rashidi has twenty-four years of machine design experience related to real-world engineering problem solving for industry, where his research work has resulted in several publications in refereed technical journals as well as six patents in print. Rashidi's latest patent has been reduced to a fully functional wind harnessing system that is installed on the rooftop of the Plant Service Building at Cleveland State University. This innovative wind harnessing system has been featured in many national and international journals, including *New York Times*, *Business Week*, *Reuters*, and *Wind Tech-International*.

Neil Reid is Professor of Geography and Planning and director of the Urban Affairs Center at the University of Toledo. He is an industrial geographer with research interests in the theory and application of industrial clusters. He currently serves as chair of the International Geographical Union's Commission on the Dynamics of Economic Spaces and as executive director of the North American Regional Science Council.

Bernard Sater and **Neil Sater** are the father and son founders of GreenField Solar. Bernard is the inventor and is primarily a skilled technologist, rather than a businessman. Neil is more focused on the business side of their entrepreneurial venture.

Bernard Sater had a long and successful career at NASA Lewis Research Center (now named Glenn Research Center) with broad experience in engineering. His most recent position was Project Manager for Advanced Development, where he was responsible for

the International Space Station solar cells and associated materials. He retired early in 1994 to devote his time to commercializing his unique PhotoVolt™ solar cell invention. Bernard holds a BEE degree from The Ohio State University and an MSEE from Cleveland State University, with additional graduate studies at the University of Toledo. Bernard has been awarded five patents.

Neil Sater left Intel Corp. at the beginning of 2008 to devote full time to GreenField. At Intel he managed America's Comms, Media, and Software business development teams, driving commercial success of the company's new products and major growth initiatives such as WiMAX, Centrino and Atom Processors. Prior to Intel, Neil worked as an engineer and engineering manager for Spectra-Physics, where he was an Associate Scientific Fellow. Neil taught in the Myers University MBA program from 2000–2002, and holds one patent with others pending. He holds a BSEE from The Ohio State and an MBA in finance/marketing from Wright State University.

Bruce W. Smith is a Professor Emeritus of Geography at Bowling Green State University, and a Research Fellow in BGSU's Center for Regional Development. He also has been a Visiting Research Fellow in the Urban Affairs Center at the University of Toledo. He is an industrial geographer whose recent research has focused on cluster-based economic development, with an emphasis on the greenhouse industry of northwest Ohio. He is particularly interested in the application of social network analysis to understanding the functioning of clusters.

Bahman Taheri is the CEO of AlphaMicron (AMI™), a Kent-based research and development company founded in 1996 initially designed for the Department of Defense. The company's initial focus was to create an electronically controllable tint technology for US Air Force fighter pilots. In the process, it created the world's only liquid crystal visor that provides electronic tint on demand. This product has since been commercialized in products such as ski goggles, autodimming automotive mirrors, and energy-efficient

adaptive windows. Recent accolades include Innovation of the Month from *Motorcycle Consumer News*, and a Manny Award for excellence in manufacturing in the product development category.

Andrew Vaeth is the CEO & Co-founder of Cureo. He is a respected pioneer in web services and on-demand technologies, and has guided his organizations to market success with multiple world-class workforce software solutions. Prior to his role at Cureo, he co-founded and served as president and chief executive officer of ExpenseWire, which achieved significant recognition as a high growth, emerging leader in the expense management software space before it was purchased in a positive transaction. ExpenseWire is now a unit of Paychex (NASDAQ: PAYX). Learn more about his current internet software project at Cureo.com. Born in Cleveland Heights, Ohio, raised in Wooster, Ohio, he is a graduate of Indiana University (Bloomington). Andrew currently resides in Wooster, Ohio, with his wife and two children.

Russ Vernon is the retired chairman of West Point Market, an upscale family-owned specialty food store in Akron, Ohio. Founded in 1936 by his father and two business partners, the store has become a regional destination for professional chefs, recreational cooks, and people who love good food. In addition to other publications, West Point Market has been featured in the *Wall Street Journal*, *New York Times*, *Bon Appetite*, *Food & Wine Magazine*, *Esquire*, *Nation's Business*, *Inc Magazine*, and *Reader's Digest*. ABC's Good Morning America featured West Point Market in a national segment on businesses acclaimed for their high levels of customer service. He is a recipient of the 2014 Specialty Food Association Lifetime Achievement Award.

Vernon was named Small Business Person of the Year by the Small Business Administration, Entrepreneur of the Year by the Akron Regional Development Board, and Sales and Marketing Executive of the Year by the Akron Sales & Marketing Association. In 1995 he was an Ohio delegate representing small business to the

White House. Vernon is past chairman of the Fitzgerald Institute of Entrepreneurial Studies at The University of Akron. He was an Ernst & Young Entrepreneur Finalist and inducted into the Family Business Hall of Fame at Case Western University's Weatherhead School of Business. Vernon volunteers time as a counselor for SCORE, America's counselors to small business, past board member of Goodwill Industries and serves on the Advisory Board for the Hattie Larlham Foundation. He authored the *West Point Market Cookbook* published by The University of Akron Press. Russ has three sons and resides with his wife, Peg, at their home in Akron, Ohio.

Lauren Wolf is the Founder and CEO of Aeroclay, a 2009 technology transfer company commercializing a patented platform technology called aerogel, under an exclusive licensing agreement with Case Western Reserve University. Prior to that, Wolf was a founding member and C-level executive of DLM Diversified LLC, and a partner with Deloitte from 1985 to 2002. Wolf received a BBA in Accounting from The Max M. Fisher College of Business at The Ohio State University, and a BBA in Business Administration-Accounting from Cleveland State University. She was given the Gold Medal and Elijah Watt Sells Award for high performance on the CPA exam, was named Woman of Achievement by the YWCA, is a founding board member for Dress for Success Cleveland, and a former board chair for the same organization.