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More Capital Can Translate Prodigious Rust Belt Innovation into New Heartland Businesses and Jobs

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Introduction

Since the 2016 election was tipped by voters in Rust Belt States—many of whom are on the short end of national trends of job dislocation and growing geographic economic disparities—interest in effective strategies for supporting new business and job growth in this important region has intensified.

The states of the upper Midwest share more than their swing-state status. There is a unique and shared economic and social development storyline to the industrial heartland that extends across all or part of 12 states from Minnesota and Missouri in the West, across the Great Lakes and up the Ohio River Valley to Western New York, Pennsylvania and West Virginia in the East.[1] The cradle of America's great industrial economy, the region has borne inventions such as the automobile and the assembly-line manufacturing process. The once-thriving small factory towns are now anxious about their job prospects and futures.

Still, the region's network of colleges and universities generate top talent that in turn creates new discoveries, startups, and innovation. The region's vitality and economic potential has attracted a renewed commitment by the nation's business, civic, and philanthropic leaders to invest in the Heartland. Yet despite all the interest and media coverage, the region still struggles to attract and retain venture capital funding and financing to turn its innovations into new business and jobs locally. While the Midwest outpaces other US regions on innovation and talent-creation metrics, it continues to export its wealth and new discoveries to the coasts.

[1] Austin, John C., "A tale of two Rust Belts: Diverging economic paths shaping community politics," The Avenue, Brookings Institution, June 30, 2017.

Several states have created state-backed funds to support local venture-growth strategies, but a regional fund-of-funds can accelerate attraction of new capital and investment in promising companies. With the current political and economic interest in the region, such a fund could catalyze additional job and business growth and help more Midwest workers find a place in today's changed economy.

Top Talent and Innovation Generated by the Region's Universities

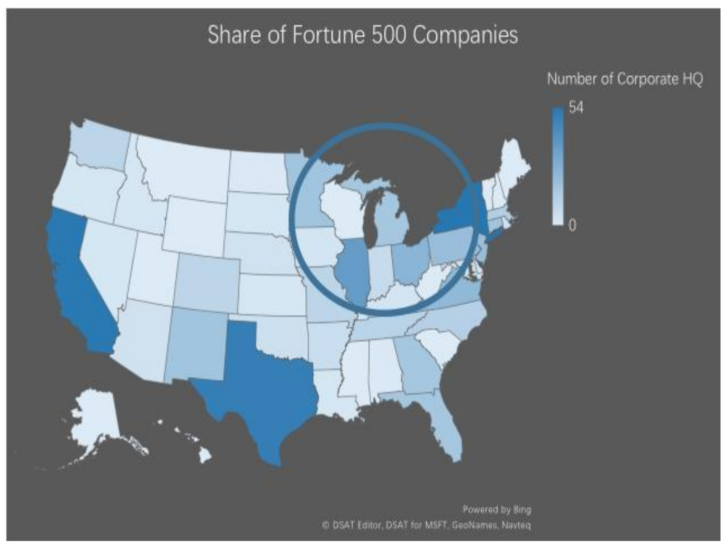
The region has many economic challenges but also boasts important economic strengths—strengths built as it powered America's twentieth-century economy. Perhaps first among these is the tremendous innovation and talent output emerging from its companies and universities. Home to more than 200 of the nation's Fortune 500 companies, and 20 of the world's top 200 research universities, the region is responsible for 26 percent of the nation's corporate and university patents, 31 percent of the nation's university research and development, and 34 percent of the nation's highly competitive National Institutes of Health (NIH) research funding, key to creation of new drugs and medical technologies.

Table 1

The Times Higher Education World top 980 Universities in the World

Institution	Location	Rank
University of Chicago	Chicago, IL	10
University of Pennsylvania	Philadelphia, PA	13
University of Cornell	Ithaca, NY	19
Northwestern University	Evanston, IL	20
University of Michigan	Ann Arbor, MI	21
Carnegie Mellon University	Pittsburgh, PA	23
University of Illinois at Urbana-Champaign	Champaign, IL	36
University of Wisconsin-Madison	Madison, WI	45
University of Minnesota	Minneapolis, MN	53
Washington University in St. Louis	St. Louis, MS	57
Pennsylvania State University	State College, PA	68
Purdue University	West Lafayette, IN	70
The Ohio State University	Columbus, OH	72
University of Pittsburgh	Pittsburgh, PA	80
Michigan State University	East Lansing, MI	102
Case Western Reserve University	Cleveland, OH	126
University of Notre Dame	South Bend, IN	142
Indiana University Bloomington	Bloomington, IN	150
University of Rochester	Rochester, NY	151
University of Illinois at Chicago	Chicago, IL	200

Source: Times Higher Education, 2017



The formidable network of colleges and universities in the region means the upper Midwest punches above its weight in generating talent. With 31 percent of the nation's population, Rust Belt states produce 35 percent of the nation's total bachelor's degree holders, 33 percent of STEM graduates, and 32 percent of all higher education degrees awarded in the US.

The power of these assets to drive local technology-based economic development and contribute to and communicate a modern, post-Rust Belt economic reality and storyline is seen across the region. Three of the top ten fastest growing Tech Talent

Markets in North America were Madison (#3), Pittsburgh (#5), and Cleveland (#8), according to the 2018 rankings from CBRE reports.[2]

Pittsburgh (still popularized by some as a Rust Belt poster child) has reversed its steel economy collapse. Today Pittsburgh has built a winning economy and is earning a new reputation on the backs of IT, energy, and healthcare innovation coming from Carnegie Mellon and the University of Pittsburgh. Indianapolis is emerging as a tech-hub with a focused business-led effort to keep and put to work talent emerging from its four leading universities. Top research universities like Purdue, Notre Dame, University of Wisconsin, Ohio State University, Penn State, University of Illinois, University of Michigan, University of Iowa, and University of Indiana anchor growing "start-up" communities in the Heartland. Innovation guru Ian Hathaway's latest report on *America's Rising Startup Communities* notes Columbus and Indianapolis among the national startup communities that continue to expand. Pittsburgh, Madison, and Ann Arbor are among those rising faster than national peers.[3]

A Renewed Commitment to Investing in the Heartland

For a long time, business, university, civic, and philanthropic leaders in the Midwest struggled against headwinds of both capital and talent flight in the effort to translate innovations generated in the region into businesses and jobs locally. In recent years both have begun to return—helping translate the inventions and discoveries in the region into money-making enterprises.

Entrepreneurs and investors, including coastal venture capitalists and wealthy regional "ex-pats" are discovering and investing in the talent, new ideas, and technologies generated in the region. Consider the following:

- Techstars' Ted Serbinski, now operating out of Detroit, tells *Crain's Detroit* "This is arguably one of the most talented regions in America, churning out the most real, revenue generating businesses. None of these social networks that will 'figure it out later'." He quotes serial Silicon Valley entrepreneur Steve Blank, "Silicon Valley is out of A players. Don't start your company here. Start it in Ann Arbor. You won't find the talent you need here. It's in Ann Arbor."[4]

- Silicon Valley investor Mark Kwaame in founding the $250 million Drive Capital Fund in Columbus says "We believe the Midwest is the best place to build a company. We have bet our careers and reputation that we can find the world's next household names in technology right here in the Midwest. I believe we will find the next Larry Page in Chicago, the next Jack Dorsey in St. Louis, the next Jim Goetz in Ohio."

[2] "Scoring Tech Talent in North America 2018," CBRE, July 23, 2018.
[3] Hathaway, Ian, *America's Rising Startup Communities,* Center for American Entrepreneurship, July 31, 2018.
[4] Serbinski, Ted, "The diamond in the Midwest," *Crain's Detroit,* May 10, 2013.

- Ohio Innovation Fund Manager Bill Baumel, another Silicon Valley refugee, just wrote in *Venture Beat*, "I see more 'Silicon Valley-quality' companies (here) in medical technology, cyber security, data science, and advanced manufacturing that have grown over 100 percent annually to tens of million in revenue with sights on $100 million, and have more prominent customers including a majority of the Fortune 500 and leading universities.[5]

Other Silicon Valley venture capitalists are being shepherded through the region by Midwest political and business leaders, and liking what they see.[6]

Helping drive innovation in the region is the fact that the talent-generating hubs of the Midwest are today keeping more of this talent at home. CBRE ranks Minneapolis and Chicago among the nation's talent hubs.[7] Pittsburgh has reversed a brain drain and today is a tech-talent magnet. Michigan and Pennsylvania are now among states performing best for talent retention. The driving factor, according to researchers, being the quality of those states' institutions higher education, especially the existence of highly ranked research universities and top-tier colleges.[8]

The 2016 election also accelerated interest and activity in the region. The election of President Donald Trump by Rust Belt swing states, where voters anxious about their economic future appeared key, has now focused the nation's and the world's attention on how to accelerate the successful economic transition of the Rust Belt. Entrepreneurs and investors, in addition to finding good deals and making money, are also looking to contribute to the economic and concomitant cultural and political transformation of the Heartland, and especially the Rust Belt states given their outsized role in the nation's economy, politics, and culture. Witness the creation and attention gained by Steve Case and JD Vance with their Rise of the Rest Fund. Rust Belt expatriates like former Microsoft CEO Steve Ballmer are creating vehicles to steer some of their billions to lift places like Detroit.[9]

Some see another reason for capital to target the Heartland. The tech giants and their investors risk being isolated from the people and politics of the nation—trapped in their Silicon Valley bubble, at-risk of being blamed for the nation's economic and political woes. As the *Dallas Morning News* argues, "By locating in emerging tech hubs outside Silicon Valley, leading venture capitalists could gain a measure of protection against changing politics. In an earlier era, the military and its industrial complex mitigated political risk by opening bases and plants in congressional districts across the country. Moving could also serve as a form of patriotic economic development if it meant investing in "comeback cities" of the Heartland such as Detroit, St. Louis, or Youngstown, Ohio."[10]

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[5] Baumel, Bill, "3 challenges the Midwest still faces in attracting more venture capital," *Venture Beat,* July 14, 2018.
[6] Roose, Kevin, "Silicon Valley Is Over, Says Silicon Valley," *The New York Times,* March 4, 2018.
[7] "Minneapolis ranked top tech talent market in Midwest," *Finance & Commerce,* July 24, 2018.
[8] "Most states lack developed, late-stage startup capital ecosystems, PitchBook finds," State Science & Technology Institute, June 28, 2018.
[9] Steve and Connie Ballmer, *Inside Philanthropy*
[10] Hendrix, Michael, "Silicon Valley should disperse itself across the country for fresh ideas," *Dallas Morning News,* July 14, 2018.

These diverse spurs to investor interest in the region is beginning to manifest itself on the ground. New multi-million dollar funds are closing across the Midwest, including new participation by significant coastal investors.[11] The region is also seeing some attention-getting "Silicon Valley like" exits. Ann Arbor-Detroit's Duo Security, which recently went public as one of the region's few $1 billion+ "unicorns" just sold to Cisco Systems for $2.3 billion—minting new local millionaires and promising further new technology development ripple effects.

Exporting the Gains to the Coasts

Yet despite all this interest and activity, the Midwest's innovation still does not get translated into new businesses and jobs in the region at the rates one would expect it could and should. Architect Frank Samuel first detailed the combination of factors in the 2010 report by the Brookings Institution's Great Lakes Economic Initiative and Ohio's "Third Frontier," *Turning Up the Heat — How Venture Capital Can Help Fuel The Economic Transformation of the Great Lakes Region*,[12] which was also published by the Chicago Council on Global Affairs.[13] He showed that despite outpacing other US regions on innovation and talent-creation metrics, the Midwest's innovation does not spur local new business and jobs in the region at the rates one would expect.

Investable ideas and technologies often languish at big companies and universities; or still are not "found" by coastal money and VC's. Generating between one-fourth to one-third of the nation's new ideas, technologies, and talent, less than 5 percent of the nation's total venture capital investment[14]—which peaked at $84 billion dollars in 2017[15]—is spent in the Midwest. The most recent data from State Science and Technology reporting shows in the second quarter of 2018 only 7.9 percent of the nation's venture deals, and 3.4 percent of the nation's deal value occurring in the Great Lakes States.[16] In 2010 Samuel also found low ratios of VC dollars invested in the region relative to innovation metrics (like NIH funding won) as compared to coastal states.

Too often promising early-stage companies that are spawned in the region are acquired, taken, or encouraged to re-locate close to coastal investors, meaning new emerging businesses and the jobs they create go elsewhere. Still too much of the talent generated in the region in the form of newly minted MBA's and budding investment professionals do not find a home at the region's thickening but still thin-by-coastal-standards and geographically disbursed network of VC's, private equity

[11] Wilkins, Pete, "Why Midwest Capital Is Fueling Rockets, Electric Cars, and the Heartland," *Forbes,* July 27, 2018.
[12] Samuel, Frank, *Turning up the Heat: How Venture Capital Can Help Fuel the Economic Transformation of the Great Lakes Region,* Brookings Institution, January 29, 2010.
[13] Samuel, Frank, *A Venture Capital Strategy for the Great Lakes,* Chicago Council on Global Affairs, March 9, 2010.
[14] Rowley, Jason, "Here Are the Top Midwestern States and Cities for Startups," *Crunchbase,* March 20, 2018.
[15] Bernard, Zoë, "Venture-capital funding in 2017 was the highest it's been in the past 10 years," *Business Insider,* January 10, 2018.
[16] Ksiazkiewicz, Robert, "Useful Stats: Regional VC trends, VC deals & dollars by state by quarter (Q1'16 to Q2'18)," State Science & Technology Institute, July 19, 2018.

firms, angel networks, and financial and investing institutions. They head for the coasts.

If anything, the region's great wealth amassed over the years by its companies, philanthropies, public and private pension funds, and university endowments serves to subsidize coastal VC's, and new business growth elsewhere. Most strikingly, Samuel found 47 percent of pension fund dollars allocated to VC's come from the region, while at the time only 12 percent of VC dollars were invested here.[17]

Investments from the region's well-endowed universities tell a similar story. The region is home to 7 of the nation's 25 'richest' universities sporting multi-billion dollar endowments.[18] Endowment managers do not yet see enough responsible and high-return investment opportunities for the share of endowments that they are increasingly investing in venture capital[19]—meaning too many of these "home-grown" dollars bankroll business and job growth elsewhere.[20]

Universities among the Nation's 25 "Richest"			
University	**Location**	**Endowment**	**Ranking**
University of Michigan	Ann Arbor, Michigan	$10.9 billion	#9
Northwestern University	Evanston, Illinois	$10.4 billion	#10
University of Notre Dame	Notre Dame, Indiana	#9.35 billion	#13
Washington University in St. Louis	St. Louis, Missouri	$7.86 billion	#15
University of Chicago	Chicago, Illinois	$7.5 billion	#16
Cornell University	Ithaca, New York	$6.75 billion	#18
Ohio State University	Columbus, Ohio	$4.25 billion	#23

Source: "The 100 Richest Universities: Their Generosity and Commitment to Research 2018," The Best Schools, July 2018

And these universities—the very engines of tech-driven economic development—are being undercut by Midwest state's own fiscal and policy shortsightedness. As reported in the *Atlantic*, threats such as those to tenure in Wisconsin and faculty pensions in Illinois may accelerate an exodus of worried researchers and their research funding.[21] Decades of real-dollar decreases in state investment in higher education institutions and financial aid for students in Michigan, Illinois, Iowa, Missouri, Minnesota and Ohio undercut the strength and potential economic contributions of their flagship universities.

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[17] Samuel, Frank, *Turning up the Heat: How Venture Capital Can Help Fuel the Economic Transformation of the Great Lakes Region,* Brookings Institution, January 29, 2010.
[18] "The 100 Richest Universities: Their Generosity and Commitment to Research 2018," The Best Schools, July 2018.
[19] Schigel, Tim, "To support local founders, universities should invest in venture capital," *Venture Beat,* September 8, 2017.
[20] "Dolan, Matthew and David Jesse, "Pittsburgh over Detroit: Why the University of Michigan invests so little at home," *Detroit Free Press,* February 1, 2018.
[21] Marcus, Jon, "The Decline of the Midwest's Public Universities Threatens to Wreck Its Most Vibrant Economies," *The Atlantic,* October 15, 2017.

The Rise of State-Backed Venture Growth Strategies

To change this equation, commercialize more of the region's innovation locally, and build out the region's innovation infrastructure in the form of smart investors, regional VC's, early-stage capital funds, and catalytic business support organizations, several states in the region have created state-backed funds and seeded regional early stage capital support organizations.

Early stage capital and financing in all forms, and the supporting infrastructure of accelerator and support/coaching organizations are all important tools of state policy to better commercialize innovation, but attracting more venture capital is particularly important. With 75 percent of venture capital concentrated in just three states—New York, California, and Massachusetts—more venture capital is vital to nurture tech-driven economic development in Heartland states.

High-risk but high-return, venture-backed firms provide the big payoffs in term of business growth and new employment. And as Ann Arbor's RPM Ventures Marc Weiser said, "Venture capital's 'home-runs' create dynamics much more powerful than the 'singles and doubles' generated by private equity or other forms of investment—creating new wealth among talented entrepreneurs that compounds and accelerates the local dynamic of continuous new business development."

Venture investing also is focused on the technologies, products, workforces and companies of the future—bankrolling firms in emerging sectors like IT, bio-science, and cleantech—that can contribute to a new story about any region where these firms emerge and thereby rebranding them as innovative and creative talent centers, rather than industrial backwaters. This is a story the Rust Belt very much needs and wants to tell.

Many states have successfully put venture growth strategies to work. Michigan's $400 million 21st Century Jobs Fund, created by securitizing the state's tobacco settlement money that was operated under Governor Granholm from 2005-2011, was credited with spawning dozens of companies. It also helped grow the state's venture capital ecosystem from a handful of VC firms and less than $1 billion of assets in 2005, to over $5 billion in VC investments by 2015 managed by twenty-nine in-state and out-of-state firms operating in Michigan. Illinois in 2016 opened its second state fund-of-funds: The State's Technology Development Account operated from 2002-2015 with 1 percent of the State's Treasurer's investments dedicated to venture capital firms located in Illinois, supporting over 250 companies across 18 funds. The new Illinois Growth and Innovation Fund created in 2016 will invest $222 million from the State's Investment Portfolio in state venture capital firms and is projected to create 11,700 new jobs in Illinois and attract more than $400 million in additional private sector money.

Indiana's Governor recently announced that the Next Level Invest Trust Fund was open for business and making its first investments.[22] It started with $250 million from

[22] Wilson, Stephanie, "Next Level Indiana Trust Fund Makes First Two Investments," State of Indiana, July 19, 2018.

the $3.8 billion raised from lease of Indiana's toll roads and was put to work to multiply investment in venture capital funds and promising startup companies. Ohio business leaders just called for a re-up of the Third Frontier Innovation funding—a successful bond funded initiative which has since 2005 translated university and private R&D into hundreds of businesses and tens of thousands of new jobs, and for the revival of the Ohio Venture Capital Fund of Funds, first created in 2005.[23]

A Call for a Regional Fund of Funds

The idea whose time may have come given the widely shared interest in "Rust Belt Revival" is creation of a Great Lakes region fund or fund-of-funds. The fund was first proposed in *Turning Up the Heat* as a vehicle to raise money from within and without the region to invest in smaller well-run state and local/regional VC funds and co-invest in promising companies. In working to "sell the fund" to investors at the time there was interest in the financial proposition, but not yet a compelling social impact mission. Investors were interested in making money and spotting more deals, but there was not yet interest in the concomitant social impact of supporting economic transformation and new business and job growth in the Rust Belt.

Today there is strong political and economic interest in the region. And the new business development opportunities in the region are greater than ever given the impressive amount of innovation and talent generated here. The venture capital and early stage capital investment and investor ecosystem has also matured and grown—with more smart VC managers and others making successful investments, and more entrepreneurs starting promising enterprises—all making the potential financial success of a Regional Fund more likely.

Today, the opportunity to develop in a fund that can deliver better-than-market financial returns to investors while delivering social impact by accelerating economic growth in the Midwest, may be exceedingly attractive. That is why Brookings Institution and the Chicago Council on Global Affairs are sponsoring and coordinating research with support from the University of Michigan Ross School of Business Executive MBA program, and facilitating discussions with key informants and interested parties to assess the feasibility and identify practical steps to take to develop such a fund—a fund that can catalyze additional job and business growth and help more Midwest workers find a place in today's changed economy.

[23] Ghose, Carrie, "Renewing Third Frontier, scaling Smart Columbus statewide among Ohio Chamber's innovation economy recommendations," *Columbus Business First,* July 18, 2018.