COMPETING AT SCALE

THE CASE FOR A DETROIT-ANN ARBOR INNOVATION CORRIDOR

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Richard Florida and the Creative Class Group

creative class group

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INTRODUCTION

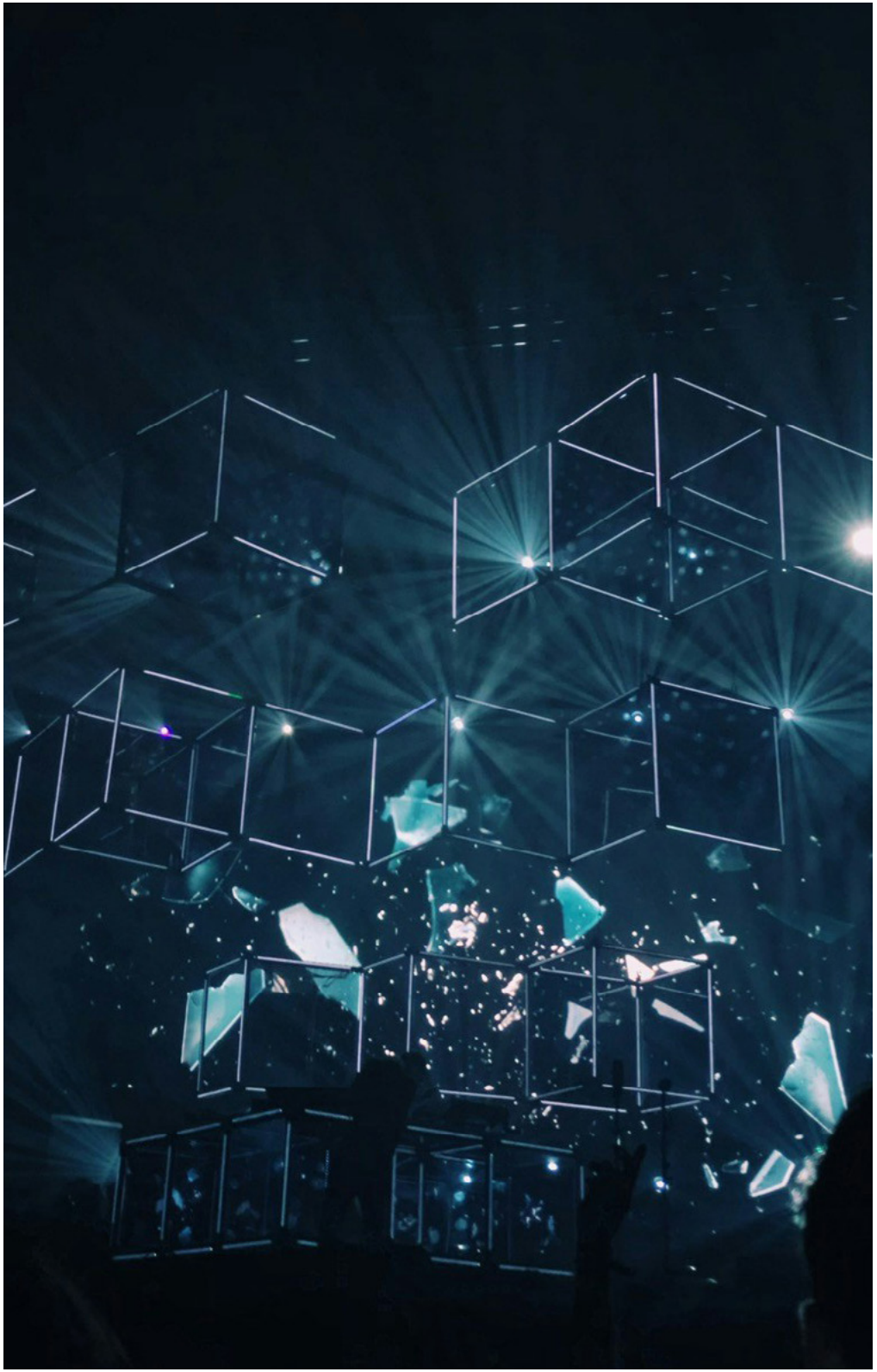
The time has come for a Detroit-Ann Arbor Innovation Corridor. The two cities anchor a region whose incredible revival has captivated the world. But individually, they lack the scale that is needed to compete against much bigger innovation hubs like the San Francisco Bay Area, London, New York City, and Shanghai. An Innovation Corridor that knits Detroit and Ann Arbor together can provide it, spurring greater job generation and population growth.

The Corridor can also lead in creating a new and more positive model for high-tech-driven economic development. Silicon Valley's model of high-tech development privileges new industries over existing ones, carving deep economic divides between highly educated knowledge workers and everyone else. Because of its strengths in automotive design and manufacturing, the Corridor has an opportunity to transform its existing industries in ways that provide economic opportunities for a much larger share of its workforce. Today's automobiles are essentially computers on wheels. And no other region is better positioned to combine the technologies that are reinventing mobility—artificial intelligence, software, robotics, green energy, and smart infrastructure—with those of traditional and advanced manufacturing. Those same technologies can also be employed in city building in ways that deepen the more inclusive model of economic development that has guided Detroit's storied revitalization.

INTRODUCTION (CONTINUED)

Thus far, the missing element in Michigan's innovation economy has been the catalytic role played by major research universities. Stanford powered the development of Silicon Valley and the Bay Area in the 1950s and '60s. MIT and Harvard provided the research capabilities for Boston's Route 128 innovation complex in the 1960s and '70s. The University of Texas at Austin has been the engine of Austin's rise as a leading high-tech region. And Carnegie Mellon drove Pittsburgh's comeback from the collapse of its steel and other heavy industries.

The region's university research corridor, which includes the University of Michigan, Michigan State, and Wayne State University, graduates more talent every year than Boston-Cambridge, the San Francisco Bay Area, and the North Carolina Research Triangle. The University of Michigan is one of the world's leaders in computer science, software, electrical and chemical engineering, and artificial intelligence. In addition, Detroit is home to a cluster of significant new innovation institutes, including Michigan Central, the University of Michigan Center for Innovation, the Michigan State-Henry Ford Health Sciences Center, Wayne State University's TechTown, and the newly announced Bedrock's Gratiot Site Innovation District that will anchor a new innovation district near the entrance to downtown.



THE CHALLENGE AND THE OPPORTUNITY

Innovation has long been the driving force of economic growth.[1] And for much of the nineteenth and twentieth centuries, Detroit and its surrounding cities had the world's most technologically advanced manufacturing industries and the world's largest complex of corporate research and development laboratories.[2] But over the past 75 years, the kinds of innovation that drive economic growth and the institutions that support it changed.[3] The geography of innovation shifted to coastal hubs like California's Silicon Valley and Cambridge-Boston, while the Great Lakes region entered a protracted period of deindustrialization and decline.

Anchored by great research universities and fueled by venture capital, those coastal complexes rolled out one pathbreaking, industry-defining innovation after another, from semiconductors, computers, software, and mobile devices to biotechnology, the Internet, e-commerce, social media, and artificial intelligence. Between 2005 and 2017, just five metropolitan areas—San Francisco, San Jose, Boston, Seattle, and San Diego—accounted for more than 90 percent of growth in the high-tech innovation sector. Fully a third of America's innovation jobs were in just sixteen of its more than 3,000 counties.[4]

The magnitude of this shift can be seen by comparing America's leading companies with those of half a century ago. In 1965, Detroit was home to America's first and third largest corporations, General Motors and Ford.[5] The top five American corporations by market capitalization today are Apple, Microsoft, Alphabet, Amazon, and Nvidia. All of them were born as high-tech startups backed by venture capital, and all of them are located on the West Coast.

THE CHALLENGE AND THE OPPORTUNITY (CONTINUED)

But recently that bicoastal geography of high-tech innovation has come up against significant limits. Even before the COVID-19 pandemic, the explosive growth of those knowledge centers had sparked a new urban crisis of affordability as skyrocketing real estate prices made it harder for them to attract talent and incubate and scale new ventures.[6] By creating a huge global experiment in remote work, the pandemic enabled and accelerated the geographic spread of innovative activity.[7] AOL founder and venture capitalist Steve Case dubbed the shift "the rise of the rest," and made an impassioned case for growing and expanding new innovation and startup ecosystems across the nation, especially in the industrial heartland.[8]

Regions, states, and nations have typically followed one of two possible paths for technology-based economic development.[9] The first is "shifting," applying new technologies to generate wholly new industries, often in new geographic regions. This was the growth model the United States followed as it pivoted from steel, autos, chemicals, and consumer electronics to high-tech. Shifting was also the path adopted by older US regions like Boston and Pittsburgh when they created new industries to replace their declining ones—textiles in Boston and steel, aluminum, and heavy industry in Pittsburgh.[10]

The second path for technology-based economic development is "deepening," the application of new technologies to incrementally improve existing industries. This is the path that Germany, Japan, and South Korea have taken as they have upgraded their steel, auto, chemical, consumer electronics, and related industries.

The Detroit-Ann Arbor Innovation Corridor can potentially join both paths, shifting and deepening simultaneously. As the great economist of innovation Joseph Schumpeter noted many decades ago, the process of creative destruction is the underlying force of progress, revolutionizing "the economic structure *from within*, incessantly destroying the old one."[11] And new technologies like artificial intelligence, software, connected computing, and hybrid and electric power plants are transforming legacy automotive manufacturing into advanced mobility, one of the hottest high-tech fields on the planet.

With its leading-edge R&D, world-class talent clusters in design, engineering, and advanced manufacturing, and the ability to actually manufacture complex products at scale, the Detroit-Ann Arbor Innovation Corridor can forge a new and more holistic model for industry-transforming innovation, generating jobs and development for much broader swaths of its communities, while avoiding the pitfalls of becoming another "Silicon Somewhere."

UNRIVALED ASSETS

The Corridor's innovation assets are many and stack up well against leading global centers. The Detroit metro invested more than $20 billion in corporate R&D in 2022, more than all other metros except San Jose, San Francisco, Seattle, Boston, New York, Los Angeles, and Philadelphia, and more than most states and many nations.[12] The University of Michigan, which consistently ranks in the top three universities nationally for R&D spending, invested almost $2 billion, with Michigan State University adding another $750 million, and Wayne State University generating an additional $250 million in academic research.[13]

The region has also seen significant growth in venture capital-backed high-tech startups—a critical barometer of commercial innovation. Between 2006 and 2021, venture capital investment in Michigan grew seven-fold, from slightly under $150 million to $1 billion, $800 million of which came from the Corridor (See Figure 1).[14] Startup Genome named Detroit the world's leading "emerging startup ecosystem" for 2022.[15]

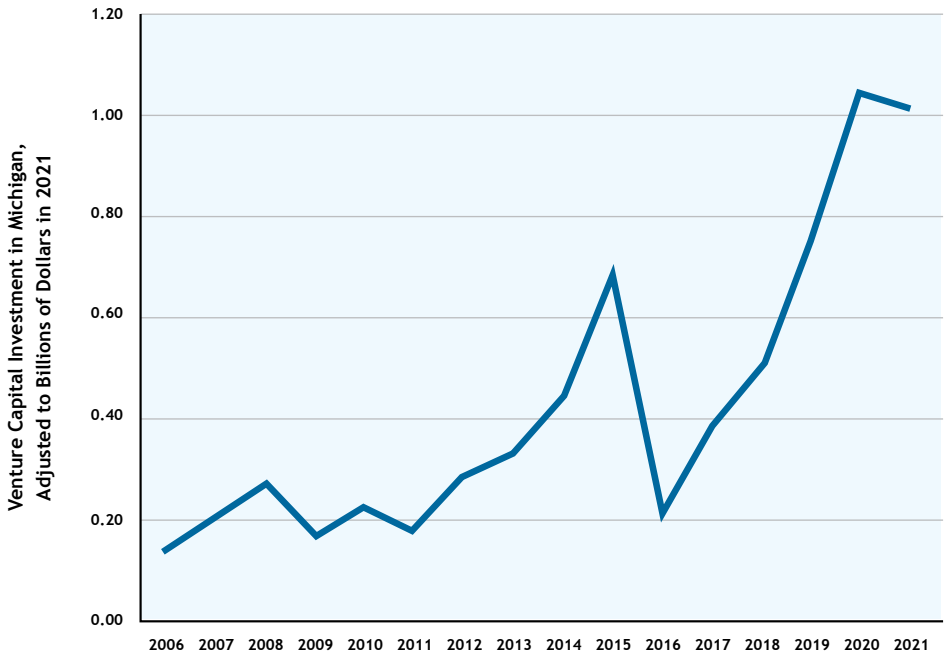


Figure 1. Growth in Venture Capital Investment in Michigan, 2006-2021
Source: PitchBook-NVCA Venture Monitor.

UNRIVALED ASSETS (CONTINUED)

Talent is the jet fuel of the knowledge economy, and the talent-producing capability of the three major research universities that comprise the region's university research corridor is virtually unrivaled. With more than 100,000 undergraduates and nearly 50,000 graduate students, the University of Michigan, Michigan State, and Wayne State turn out more talent every year than Harvard, MIT, and Boston University in the greater Boston area; Stanford, University of California-Berkeley, and the University of California-San Francisco in the San Francisco Bay Area; UCLA, USC, and the University of California-San Diego in Southern California; and Duke, the University of North Carolina-Chapel Hill, and North Carolina State University in North Carolina's Research Triangle.[16]

But too much of this crucial talent leaves the region.[17] Only one out of three University of Michigan undergraduates is working in Michigan five years after graduation.[18] Just 28 percent of its four-year graduates in mathematics and statistics and 36 percent of those with undergraduate engineering degrees are working in the state five years after graduating. And an even smaller percentage of four-year graduates in computer-related majors (25 percent) are working in Michigan five years after graduation, while a significantly larger percentage (36 percent) of them are working on the West Coast.[19]

The reason is simple. They are drawn to the higher salaries and better career opportunities that are available elsewhere. As of 2023, Michigan ranked 37th out of the 48 states that share data on wages for computer programmers, with an annual salary of around $90,000. Detroit ranked 99th for cities for computer programmers, with an annual salary of about $95,000. Ann Arbor ranked 149th for computer programmers, with an annual wage of less than $90,000. This compares to nearly $170,000 for the same work in Seattle, more than $150,000 for second-place San Jose, and just under that for Boulder, Colorado.[20] Not to mention that roughly half of University of Michigan students hail from outside the region and state, lack roots in the community, and never intended to stay in the first place.

A Detroit-Ann Arbor Innovation Corridor can help address these gaps across two dimensions.

The first is economic opportunity. Leading-edge innovative regions develop thick labor markets with abundant job opportunities and robust pathways for career advancement. This creates a flywheel effect, as large corporations are also drawn to places with deep talent pools.

The second is quality of life. Talented people can choose where they live, and the diversity of communities across the corridor provides a host of attractive options for people with different preferences and who are at different phases of their lives. Ann Arbor has all the attractions of a leading college town. It ranks fourth in the nation for its share of college grads (with 56 percent of adults holding a bachelor's degree or higher), and it's first in the share of its workforce (55 percent) that are members of the knowledge, professional, and creative class. The city of Detroit offers the energy and excitement of being part of the world's most incredible urban revival, while its leafy suburbs are much more affordable than those in the San Francisco Bay Area, Boston, or New York—or even Sunbelt metros like Miami that are becoming less and less affordable.

Here again, Detroit and Ann Arbor together add up to much more than the sum of their parts. College towns play an especially important role in startup ecosystems. In fact, it is hard to think of a leading-edge high-tech startup ecosystem that was not anchored by a college town. There would be no Silicon Valley without Palo Alto and Stanford; no Boston-Route 128 without Cambridge, MIT, and Harvard; no Denver tech complex without Boulder and the University of Colorado; and no Austin innovation ecosystem without the University of Texas.

UNRIVALED ASSETS (CONTINUED)

College towns are locations of choice for recent graduates in high-tech fields like computing, software, and artificial intelligence for several reasons. For one, it is simply easier to form or join a startup company in the same place you attended university, where you have already built personal and professional networks. For another, college towns are less daunting and often more affordable than big cities. Twenty years ago, when I was writing *The Rise of the Creative Class*, the most favored destination for Carnegie Mellon computer science and engineering grads was neither San Francisco nor New York but Austin, because as a smaller metro with a large student population it was easier to navigate and fit into. In addition to being relatively affordable, it boasted a world-class music and bar scene—hence its famous slogan, "Keep Austin Weird."

But college towns lack the scale to generate leading-edge high-tech ecosystems on their own. To do so, they must borrow scale from nearby cities and metro areas and work in combination with them. Palo Alto's rise as a high-tech center is inextricably bound up with the broader Bay Area's innovation ecosystem spanning San Jose, San Francisco, and Oakland. Cambridge's role as a startup incubator is tied to greater Boston. Boulder's innovation ecosystem helped fuel high-tech growth in Denver. The combination of Ann Arbor and Detroit has even greater potential.

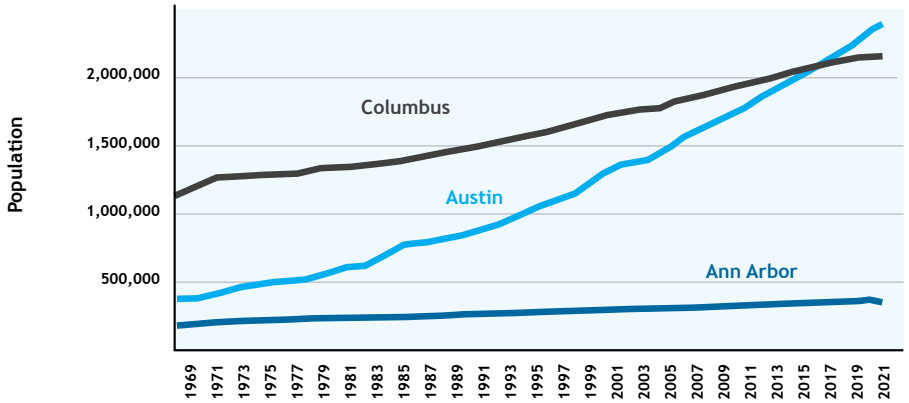


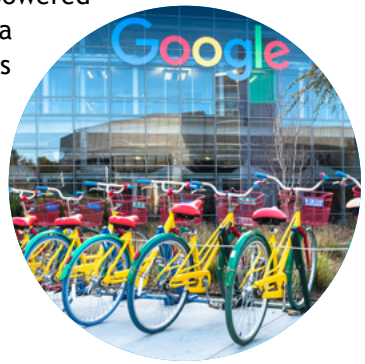
Figure 2. Growth in Population for Ann Arbor vs Columbus and Austin, 1969-2021
Source: U.S. Bureau of Economic Analysis.

The chart below provides further perspective on this question of scale by comparing the growth of the Ann Arbor metro to that of two other metros with large state universities, Columbus and Austin (see Figure 2). In 1970, Ann Arbor's population was about 230,000, and Austin's was roughly 400,000, while Columbus was home to about 1.2 million people.[21] Since then, their growth has diverged widely. Austin's population grew to more than a million by the mid-1990s, to 1.5 million by the mid-2000s, and to nearly 2.3 million in 2020, an overall growth of 475 percent. Even though Columbus started out much larger, its population nearly doubled, reaching 2.1 million by 2020. Over the same period, Ann Arbor's population grew by just 59 percent to 370,000 people. The differential can also be seen in the trend for total income, a basic barometer of economic health. In 1970, Ann Arbor's was $7.8 billion, Austin's was $9.5 billion, and Columbus's was nearly $34 billion. By 2021, Columbus's total income had ballooned to $129 billion, five times Ann Arbor's $25.4 billion, while Austin's had grown to $168 billion, nearly seven times Ann Arbor's.[22]

But when combined, Detroit and Ann Arbor generate scale that dwarfs Austin and Columbus. Together they represent a combined metropolitan area that is home to more than five million people, including more than one million college grads, more than half a million of whom hold advanced degrees, and more than one million who work in the knowledge, professional, and creative occupations that drive the innovation economy. The Detroit-Ann Arbor consolidated metro produces a total income of more than $350 billion, nearly double that of Austin and two-and-a-half times that of Columbus.[23]

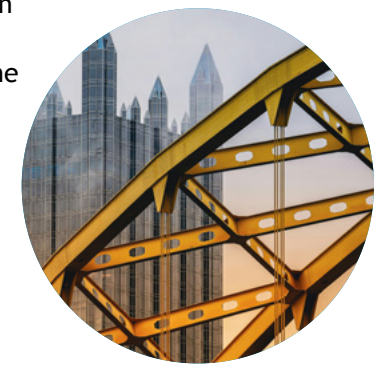
RESEARCH UNIVERSITIES AS ANCHORS AND CATALYSTS

Every high-tech innovation complex is anchored by a leading-edge research university—Stanford in Silicon Valley, MIT and Harvard in Cambridge-Boston, Carnegie Mellon in Pittsburgh, the University of Texas in Austin, the University of Colorado in Boulder, and so on.



Stanford and Silicon Valley. Stanford University powered the development of Silicon Valley and the Bay Area back in the 1950s and '60s. This was largely thanks to its visionary engineering dean and provost Frederick Terman,who saw that Stanford's strengths in electrical engineering could attract federal research funding while creating spinoff companies that would keep top talent close to home, building the local economy. Terman was a prime mover in the creation of the Stanford Research Park, to which two former students, Bill Hewlett and Dave Packard, moved their eponymous company in the 1950s. Xerox would open its fabled Palo Alto Research Center (PARC) in the Stanford Research Park in 1970, and Tesla opened an office there in 2009, to name just a few of the successful companies that are associated with it.[24]

MIT, Harvard, and the Boston Route 128 High-Tech Complex. Similarly, it was MIT and Harvard that pioneered the rise of Boston's fabled Route 128 high-tech complex after World War II. Looking for ways to retain talented graduates and commercialize their research, retired general Georges Doriot, a faculty member of Harvard Business School, led the effort to create the world's first organized venture capital fund, American Research and Development (ARD). Later, this model would be extended to biotechnology with the creation of such research centers as the Broad and Whitehead Institutes.[25]



Carnegie Mellon and Pittsburgh. Carnegie Mellon University powered Pittsburgh's economic revitalization in the 1980s. Faced with the decline of the city's steel and other heavy industries, Carnegie Mellon President Richard Cyert forged a strategy for leveraging the university's capabilities in computer science, software engineering, artificial intelligence, and robotics to revive the region, working to create leading-edge technology transfer and commercialization initiatives and new technology-based economic development initiatives.

The University of Texas and Austin. Austin provides still another example of university-led economic transformation. In 1966, the University of Texas at Austin recruited George Kozmetsky to become dean of its business school. Kozmetsky brought to his new role the innovation and economic development knowledge he'd gained as a co-founder of Teledyne as well as his experience as a professor at Carnegie Mellon. In 1977, he created the IC^2 Institute, the high-tech think tank that played a pivotal role—if not *the* pivotal role—in the development of Austin's high-tech ecosystem. Austin would go on to land federally funded R&D installations such as Sematech and MCC, recruit established high-tech companies and talent, and develop a world-class startup ecosystem.[26]

THE STRATEGIC IMPERATIVE

The Innovation Corridor is a geographic construct, so purposeful action by a diverse group of stakeholders will be needed for it to realize its full potential. The mechanism for doing this is the formation of a **Detroit-Ann Arbor Innovation Alliance,** whose explicit mission will be to capitalize on the region's assets and turn it into a global showplace for inclusive, industry-transforming, place-based innovation.

The following broad principles can help guide its design, composition, focus, and funding to be further refined and developed by its members in the light of its evolving needs.

Leadership

The Alliance should include leaders of the region's three major research universities—the University of Michigan, Michigan State University, and Wayne State University—and potentially from other academic institutions; along with prominent members of its business community, including the automotive industry, high-tech and startup sectors, and real estate; as well as representatives of the region's philanthropic, political, labor, and civic sectors.

Funding

The Alliance will require funding from its members' institutions, as well as from the region's philanthropic community and government sources.

Focus

The Alliance's work will focus on three key areas, each of which builds upon and reinforces the others. These are:

Innovation and Technology

Seven technology areas have been identified as key areas of strengths for the region to build on: mobility and advanced manufacturing; artificial intelligence; semiconductors and microelectronics; clean energy and sustainability; defense; health and life sciences; and financial technology or fintech. Two stand out as areas of particular promise, given the region's long history as the automotive capital of the world and Detroit's growing global reputation for its comeback.

One is advanced mobility which stands at the nexus of automotive, advanced manufacturing, artificial intelligence, microelectronics, and sustainability. Michigan still produces more automobiles than any other state. In fact, Michigan accounts for almost a fifth of all US automotive employment.[27] With roughly $150 billion in R&D annually, the automotive industry is second only to the biotech and pharmaceutical industries for advanced research, on par with the high-tech hardware industry and larger than software and computer services.[28] Michigan accounts for 37 percent of all corporate R&D in the transportation equipment industry and 55 percent of corporate R&D in the motor vehicles, bodies, trailers, and parts sector, with the overwhelming bulk of it concentrated in the Corridor.[29] This leaves the Corridor well positioned to take advantage of the sweeping change in mobility driven by software, artificial intelligence, autonomous driving, and electric batteries and power plants. Michigan Central is an incredible asset here. And the University of Michigan is a research leader in many of those areas.[30] The region's extensive automotive production ecosystem is an additional advantage.

The other key area is "Urban tech", which also spans several areas of technology, including mobility, smart infrastructure, advanced construction, artificial intelligence, sustainability, microelectronics, and more. It is an enormous sector for high-tech growth, comprising nearly a fifth of global venture investment.[31] Its innovations promise to make the construction industry more productive, climate-friendly, and carbon-efficient while lowering costs.

Urban tech and advanced mobility are inextricably interrelated, as advanced mobility requires new forms of smart infrastructure, and no place is better situated to capitalize on and benefit from them than the Corridor. In addition to its technological and industrial assets, it contains expansive areas for redevelopment that can serve as natural laboratories for testing these new approaches to construction, mobility, infrastructure, and city building.

The Innovation Alliance will provide a vehicle for the regional cooperation that will be needed to compete for the high-level federal funding opportunities associated with the shift to place-based economic and industrial policy.[32]

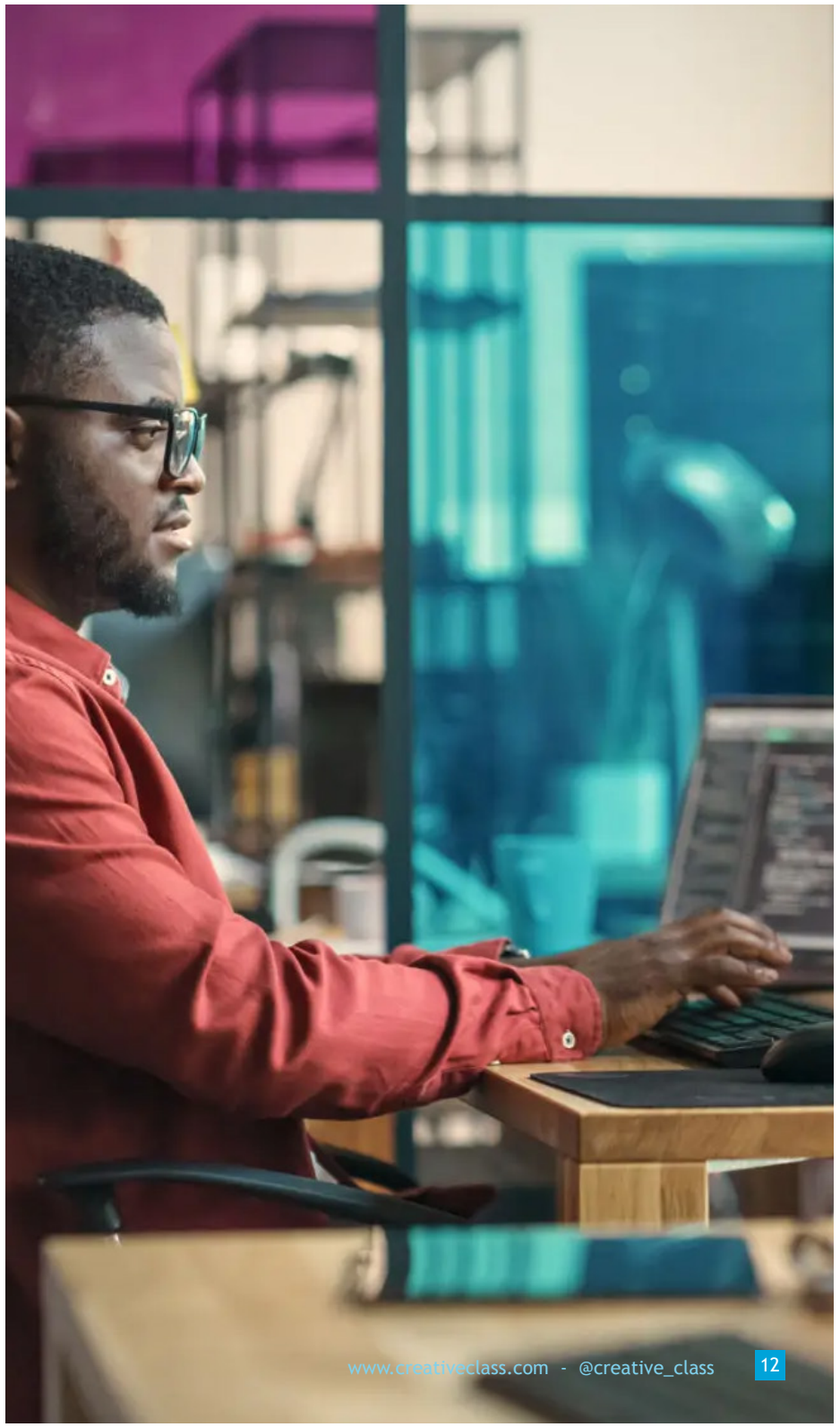
Talent

The Alliance will forge the region's strategy for attracting and retaining talent, particularly in STEM fields like computer science, software engineering, and artificial intelligence. The Alliance can learn from successful initiatives such as Campus Philly, an on-line effort to engage and retain talent from area colleges and universities that was launched in Philadelphia.[33] And it can do more to capture boomerang talent that moved away from Michigan after college, but may be looking for more affordable places to raise their children or to escape the extreme weather in the Sunbelt—the Corridor seems to be one of the places that can benefit from climate migration. Also, the Alliance can work with universities and colleges in the region to create broader and more enduring relationships with alumni and help those who may be looking to relocate and find jobs in the region.

Placemaking and City Building

Just as the large industrial corporation was the organizing platform of the industrial age, so place has become the organizing platform of today's advanced economy. But placemaking creates problems of its own. Economic success attracts more people, which puts pressure on housing prices. Over the past few years, the housing affordability crisis has spread from superstar cities like New York and San Francisco to aspiring tech hubs like Austin, Nashville, and Miami, the last of which now ranks as the least affordable city in the nation.[34] The Detroit-Ann Arbor area still enjoys an affordability advantage. As the Detroit-Ann Arbor Innovation Alliance works to bolster the Corridor's technology- and talent-based economic growth, it must also undertake proactive efforts to preserve its affordable quality of life and ensure that its development remains inclusive. Simply constructing one-off buildings or even small districts will not be enough. What is needed is something analogous to Pennsylvania's Levittown model for large suburban development—a new model of construction and mixed-use development that applies advanced mobility solutions at scale.

The speed of movement or the velocity of flow of knowledge, talent, and ideas are key factors in the success of innovation clusters. The Corridor would also benefit from rail and transit connections that shrink the "time" distance between its major nodes.



CONCLUSION

Until now, innovation in America has meant imitating Silicon Valley. But that model confers most of its benefits to a small number of high-tech hubs and a limited group of entrepreneurs, venture capitalists, and professionals. The result has been a deep and enduring crisis of housing affordability and extreme economic and social division that has left those places—and our nation as a whole—reeling.

In charting and advancing this agenda, the Detroit-Ann Arbor Innovation Alliance can create a more deeply transformative and inclusive model of innovation, one that provides better jobs for a broader segment of the workforce while forging a more powerful and inclusive pathway for economic growth.

ACKNOWLEDGMENTS

A project like this turns on the collective intelligence and creativity of a talented team. Thanks are due to the members of the project team: Rana Florida for project management, Todd Gabe for research, Arthur Goldwag for editing, Rivvy Neshama and John Wilcockson for copyediting and proofreading, Mark Block for logistical support, and Roman Pietrs for graphics and design.

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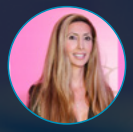
CREATIVE CLASS GROUP TEAM

Richard Florida, founder of the Creative Class Group, led the research and writing. Florida is currently Visiting Distinguished Professor at Vanderbilt University and University Professor at the University of Toronto. He is also a Visiting Senior Fellow at the Kresge Foundation. Florida previously taught at Carnegie Mellon University and has been a visiting professor at Harvard and MIT and a Fellow at the Brookings Institution. He has authored several bestsellers, including the award-winning *The Rise of the Creative Class* and *The New Urban Crisis*. Florida is co-founder of *CityLab*, the world's leading publication for cities and urbanism, and serves as strategic advisor and board member to several leading real estate development firms, venture capital firms, and investment funds.



Rana Florida managed the project. As CEO of the Creative Class Group, she has worked with a diverse array of private and public sector clients around the world. She has decades of experience in corporate strategy, communications, and marketing, having directed global strategic communications for HMSHost, the world's largest provider of retail services for travelers, and served as Vice President of Communications for Disney on Ice, Disney Live, and Ringling Brothers. Rana holds a BA in communications and an MBA with a double major in marketing and management from Wayne State University. Her book *Upgrade: Taking Your Work and Life from Ordinary to Extraordinary* was named a "Business Best Seller" by The Tattered Cover, the largest independent bookstore retailer in the US, and an "Editor's Pick" by *The Globe and Mail*.

Arthur Goldwag served as editor for this project. Senior Writer and Editor for the Creative Class Group, he has held positions at Random House, *The New York Review of Books*, and Book-of-the-Month Club and is the author of several books, including *The New Hate* and *The Politics of Fear: The Peculiar Persistence of American Paranoia*.

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