



Business Leaders' Insights

How university-led economic development
can transform our state's future

October 2020



Executive Summary

Introduction

In addition to the tremendous impact higher education institutions have on the students they serve, the research and development they conduct, and the innovations they send to the market, universities expand their impact by leveraging their roles as anchor institutions and directing their activities and resources locally. Universities can lead economic development in their local, regional, and statewide communities.

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Business Leaders for Michigan collaborated with Public Sector Consultants of Lansing to research and deliver this report.



About Business Leaders for Michigan

Business Leaders for Michigan, the state's business roundtable, is dedicated to making Michigan a "Top Ten" state for jobs, personal income and a healthy economy. The organization is composed exclusively of the executive leaders of Michigan's largest companies and universities. Our members drive nearly forty percent of the state's economy, generate over \$1 trillion in annual revenue and serve nearly half of all Michigan public university students. Find out more at www.businessleadersformichigan.com.

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To better understand the current university-led economic development landscape; compare the existing approaches, strategy, and programming of Michigan's premier research universities and clusters to similar and high-performing peers from across the country; and identify innovative and replicable engagements, Business Leaders for Michigan collaborated with Public Sector Consultants to produce this report. The structural, strategic, and programmatic takeaways we've included can identify trends that drive growth and innovation in university-led economic development in Michigan.

Methodology

Our analysis uses an adjusted framework established by the Association of Public and Land-grant Universities (APLU) and the University Economic Development Association (UEDA) that organizes programs into three categories (talent, innovation, place).

Figure 1. Categories and Definitions for University-led Economic Development Efforts

Category	Definition
Talent	Engagements that go beyond the core educational mission of the university and are targeted to support local, regional, or statewide economic development goals
Innovation	Engagements that are intentionally designed and targeted to foster and support knowledge creation, transfer, and application in ways that serve community and economic development goals
Place	The diverse spectrum of universities' targeted efforts that are primarily designed to enhance the attractiveness, competitiveness, and prosperity of communities beyond university boundaries

Using this framework as a guide, we collected a wide range of program and operational information on the efforts of offices leading economic development at 12 research-intensive universities that are widely recognized as leaders in economic development. These include three Michigan universities that make up the University Research Corridor—Michigan State University, the University of Michigan, and Wayne State University—and nine peer universities from other states:

- Arizona State University (ASU)
- Duke University (Duke)
- Georgia Institute of Technology (GT)
- Indiana University Bloomington (IU)
- North Carolina State University (NCSU)
- University of Georgia (UGA)
- University of North Carolina at Chapel Hill (UNC)
- University of Pennsylvania (UP)
- University of Wisconsin-Milwaukee (UWM)

Universities were analyzed in the following areas:

- **Talent:** University partnerships with employers, entrepreneurship programs, and talent programs, including experiential education, makerspaces, and workforce development programs
- **Innovation:** National innovation rankings; technology transfer and research and development (R&D) expenditure data; and innovation programs, including incubators, accelerators, capital access, and technical assistance programs
- **Place:** High-level extension efforts (where applicable), research parks, and place programs, with a focus on community development engagements

Structure and Strategy

While the focus of the report was examining university-led talent, innovation, and place efforts, we also reviewed university and economic development office strategic plans, organizational methods, and operational functions.

Summary of Key Takeaways

Our analysis resulted in several valuable conclusions related to university-led economic structure, strategy, and operations, as well as to the categories of talent, innovation, and place. One overarching finding is that "fit" is critical. Key to each of these universities' economic development success is in their effective alignment of structure, strategy, talent, innovation and other activities to the needs of their place and respective communities.

The following list provides a summary of key takeaways. Full lists are provided in the report's respective topic sections.

- **We found significant variation between individual university structural, staffing, and operational models when it comes to economic development.**
 - Regardless of their structural approach, some universities have created a "front door" to reduce barriers to partnerships with businesses and community-based organizations by creating a centralized and simplified pathway for these external stakeholders.
 - Economic development office staff sizes and budgets are small when compared to the broader university budgets. This results in these offices working to secure external resources from foundations and local, state, and federal economic development organizations, which can create sustainability issues but also can foster a degree of independence and flexibility.
 - **Most of the institutions we studied mentioned economic development goals in their strategic plans, but several universities, especially WSU, have centralized and prioritized them.**
 - **University economic development offices seem to prioritize the development of internal strategic engagements with departmental faculty and staff, as well as university leadership, but several institutions have expanded their impact by building on those internal bonds.** These institutions effectively leverage relationships with a wide variety of private- and public-sector partnerships to create mutually beneficial engagements.
 - **The talent programs we identified primarily focus on entrepreneurship and experiential education.** Traditional workforce development programs were not particularly common, with most universities explaining that community colleges in the state fill this gap.
- However, there may be more opportunities for leading research universities to play a role in this space moving forward.
- **Innovation is the most robust area of programming for these research universities—in fact, they represent many of the top investors in R&D nationwide.** While all of the universities have formalized their technology transfer efforts, several, including U-M, have a superior ability to catalyze the discovery of new technologies and drive the creation of new companies and commercial products. Incubators and accelerators are very common and many different types and levels of mentoring, networking, and financial support are offered.
 - **While place-based engagements are the least common programming type identified, they often have the greatest opportunity to deliver well-rounded economic impact.** Many of the highest-performing universities in this category have strong strategic plans that prioritize engagement with communities and supporting programs that are designed to address the most pressing community issues. In addition to creating and leading these targeted efforts, universities are leveraging their research parks to drive local economic growth through innovation, corporate and university cluster partnerships, and alternative working and learning environments.
 - **Given their strong individual and collective performance in talent, innovation, and place, it is possible, if not likely, that the three clusters included in this analysis are among the highest performing in the nation.** The Michigan cluster's performance, when compared to the nationally-renowned North Carolina cluster, was strong across all three categories.

Introduction and Background

Higher education institutions across the United States perform a critical role in educating students for meaningful and successful careers. They also provide industry with the valuable talent they need to compete, evolve and grow.

Universities also contribute to the public good through research and development (R&D) focused on tackling some of the world's most intractable challenges, from cancer and health disparities to global warming and sustainable energy. Further, they develop technological innovations that serve not only the public good, but also the needs of industry. The academic, social, and cultural impacts of these activities are immense, as are the economic impacts, particularly for large, research-intensive institutions. Economic impact often is measured by accounting for the purchasing power of these universities and the multiplier effects of creating thousands of jobs.*

Moreover, these universities have a unique opportunity to drive economic development in their communities and states. This report examines how universities' targeted efforts to deploy resources and expertise have become assets to improving the health, wealth and well-being of the communities in which they operate.

While Michigan has many universities that engage in economic development, it has only three—Michigan State University, the University of Michigan, and Wayne State University—that have been designated as R1 institutions by the Carnegie Classification of Institutions of Higher Education (CCHE). This category is reserved for universities that engage in the highest level of research activity, which is measured by the number of doctoral degrees awarded and total research expenditures.

The diversity and amount of research being led by R1 institutions separates them from other universities. Michigan's three R1 institutions, which includes a land grant institution, urban serving university and the nation's largest public research university, together have a significant impact on Michigan's economy overall and in each of the state's counties. They also drive innovation, entrepreneurship, and overall economic development in their communities.



Michigan State University: Center for Regional Economic Innovation

The Center for Regional Economic Innovation (REI) serves as an economic development university center within MSU's Center for Community and Economic Development and leverages the university's intellectual assets to support the creation and delivery of innovative economic development strategies across Michigan.

Created in 2011, the federally-funded REI program has served over 80 percent of Michigan's counties by supporting more than 50 small businesses and over 100 projects, resulting in an estimated \$60 million dollar boost to the state's economy. When the UEDA announced that the Women Who Weld program, which was funded by REI, would receive an Award of Excellence, it stated this project was "exemplary of higher education institution partnerships and how they should support and behave on local workforce development initiatives in distressed communities."

While these universities share a common home in Michigan, their institutional and economic development missions, structure, strategic priorities, and resources can be quite different. Like similar universities across the country, they employ many of the same strategies and programs, but these unique characteristics result in different economic development models and priorities. This variety leads to a great deal of experimentation and innovation within a wide range of economic development activity but makes any comparison and analysis of progress and impact, even among very similar institutions, very challenging.

To better understand the university-led economic development landscape and identify best practices, we established a framework, definitions, methodology, and context for analyzing the experiences of top Michigan research universities and their top U.S. peers.

Michigan's research universities have cultivated 266 start-up companies since 2002, at a rate approaching one new business formed every three weeks.

—University Research Corridor 2020 Benchmark Report

A Framework for University-Led Economic Development

University research capacity is immense, and their work can drive the creation of many solutions to the challenges communities face, as well as the discovery and development of new technologies, products, and companies. Because these areas are so entwined, the phrase "economic development" throughout this report will refer to both community and economic development.

In an effort to provide a framework to better understand, contextualize, and categorize these efforts, we rely on definitions and categories developed in a joint report provided by the University Economic Development Association and Association of Public and Land-grant Universities.

Based on this foundation, we have developed a definition for university-led economic development as the "proactive institutional engagement, with partners and stakeholders, where the primary goal is to intentionally contribute to improvement of economic development in communities."

This narrower understanding of economic development results in the exclusion of several significant ways universities impact economic development. For example, this definition excludes the employment and procurement impacts that institutions make, as well as the construction and management of hospitals and many other capital and infrastructure investments. This definition also excludes many efforts that fulfill the university's core academic missions, such as the majority of traditional degree programs.

While there are other reports and economic impact studies that attempt to examine these university functions, this report provides a closer look from a more programmatic lens to allow us to understand the current landscape, compare and contrast each university's structural and strategic approach, and identify innovative and promising models and programs for university-led economic engagement.

In addition to referencing and refining the UEDA and APLU's definition for university-led economic development, we similarly leveraged the three categories they established for different programs and projects: talent, innovation, and place (see figure 2, below). This categorization provides organization for the wide range of university services that improve the lives of their students and their surrounding communities and economies.

Figure 2. Program Type Overlaps

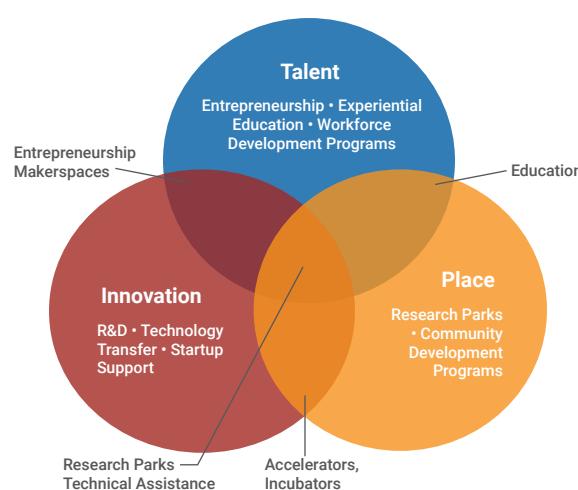


Figure 3. Peer Universities

University	City	State	Region	City Size	Residential Character	Enrollment (Ranking)	Land Grant
ASU Arizona State University	Tempe	AZ	Southwest	Midsize	Primarily Residential	51,164 (8)	
Georgia Tech Georgia Institute of Technology	Atlanta	GA	Southeast	Large	Highly Residential	29,376 (62)	
University of Georgia	Athens	GA	Southeast	Midsize	Primarily Residential	37,606 (31)	Y
Indiana University Bloomington	Bloomington	IN	Great Lakes	Small	Primarily Residential	43,710 (21)	
Michigan State University	East Lansing	MI	Great Lakes	Small	Primarily Residential	50,019 (10)	Y
University of Michigan	Ann Arbor	MI	Great Lakes	Midsize	Primarily Residential	46,002 (16)	
Wayne State University	Detroit	MI	Great Lakes	Large	Primarily Nonresidential	27,064 (72)	
Duke University	Durham	NC	Southeast	Large	Highly Residential	16,130 (108)	
North Carolina State University	Raleigh	NC	Southeast	Large	Primarily Residential	34,432 (42)	Y
University of North Carolina at Chapel Hill	Chapel Hill	NC	Southeast	Small	Highly Residential	29,911 (59)	
University of Pennsylvania	Philadelphia	PA	Mideast	Large	Highly Residential	25,367 (76)	
University of Wisconsin-Milwaukee	Milwaukee	WI	Great Lakes	Large	Primarily Nonresidential	24,988 (81)	

Peer Institutions

After establishing a framework, we developed a process for selecting institutions to include in the comparative analysis alongside the three Michigan universities.

Universities' unique historical and environmental aspects, together with significantly different state funding contexts and private investment, make cross-university comparison challenging. In addition to identifying universities that shared similarities with the Michigan institutions individually and as a cluster, we also included several in the potential pool that were identified as high performers in industry expert interviews.

This process resulted in the selection of nine institutions to be included in the analysis alongside the three premier research universities in Michigan.

Research Process

To gather and analyze qualitative and quantitative data for this study, we identified the entities within each university that lead talent, innovation, and/or place-based economic development efforts. Some universities have a centralized office that manages all three of these categories, while others employ a more decentralized approach, with several offices coordinating combinations of these categories.

We then performed three state and national expert interviews as well as a total of 13 interviews across ten of the 12 benchmark institutions. These interviews provided valuable understanding of the operations, organizational structures, staffing, partnerships, and programs of the offices identified as economic development leaders. They also gave university leaders an opportunity to identify and share reports and other resources.

Multiple leaders at two institutions, Duke University and the University of Pennsylvania, declined to be interviewed for this report. While they were not available for interviews, their leaders did indicate which offices should be considered as potential leaders of their talent, innovation, and place-based efforts. This guidance allowed us to move forward with Internet research and analysis despite lacking an interview.

Finally, we also carefully reviewed a significant number of annual reports, studies, impact evaluations, university and program websites, strategic plans, budget documents, and other publicly-available materials that included information about university-led economic development efforts. This research centered on the programs and services offered by the lead economic development office but, where possible, we attempted to incorporate programs funded or coordinated by other entities connected to the university.

Structure and Performance

Structure and strategy offer valuable lenses for understanding each university's economic development approach. Talent, innovation and place-based efforts all are impacted by the ways in which higher education teams are built and function.

Organizational Models

Economic development activities are conducted using both centralized and decentralized organizational structures. Decentralized universities are slightly more represented within the group, but the distribution of responsibility for talent, innovation, and place among one office or several does not necessarily dictate the extent to which they engage in these areas.

University approaches to economic development are likely to align with the overall organizational culture of the university.

University Strategy

We also examined the degree to which each university explicitly outlined a path for economic development in their institution-wide strategic plans.

These strategic plans reflect the unique and varied missions and motivations of these institutions, which exist across a continuum of priorities, namely those rooted in community service and those focused on growing an institution's prestige. Both of these aims are important and activities in each generate value for students, faculty, and communities.



Woodward | Warren Park is a major public gathering space envisioned by Wayne State University's economic development leaders

Photo courtesy of Wayne State University

Wayne State University: Getting the Strategy Right

WSU's strategic plan is very purposeful in its stated commitment to all three areas of economic development. Talent, innovation, and especially place-based strategies are central to the university's mission. These are translated into specific, action-oriented goals that are connected to each of the three categories.

The university's robust commitment to place-based economic development aligns with this urban-serving institution's focus on service to the community through leadership, programming, and engagement.

University Perceptions of their Own Economic Development Roles

Strategic plans provide a good deal of insight on university perceptions of their economic development roles. Our analysis of these plans, other reports, survey results, and interviews resulted in the following takeaways about university perceptions of their roles in their communities' economic development.

Economic Development Is a Core Function

University leaders—and their strategic plans—show a consistent commitment to engaging in economic development. Whether through explicit mission and goal statements, or by funding talent, innovation, and place-based programs with limited university resources, university leadership consistently makes it clear that economic development is essential work.

Community Engagement Depends on the University and its Mission

While some universities, particularly the land-grant institutions (MSU, NCSU, and UGA), see themselves as drivers of economic development statewide, others are more focused on the communities right outside their borders. Neither of these approaches is less effective, but it is important to acknowledge that the unique missions and settings of these institutions result in a different idea of what constitutes "their" communities.

Universities See Themselves Primarily as Partners in Place-Based Economic Development

Universities consistently say they best serve their communities when they act as partners, with the communities themselves driving priorities. That said, some institutions seek opportunities to play greater roles in identifying and driving problem solving within the towns, cities, regions, and states they call home.

Universities that lead in economic development proactively engage key stakeholders and help identify opportunities and challenges rather than waiting to be asked to render local assistance. Regardless of role, universities are often concerned that outsiders view them as having unlimited financial resources to support business and community projects and programs, which is rarely the case. University officials cited this as a reason for hesitation when engaging in some community efforts because, while they may have some funding to contribute, they may not meet the levels that communities might expect.



Photo courtesy of Arizona State University

Arizona State University: Focusing on Entrepreneurial Solutions

ASU's strategic plan begins with its mission, which includes the statement that the university assumes "fundamental responsibility for the economic, social, cultural, and overall health of the communities it serves."

ASU is recognized as a fundamentally entrepreneurial university that strives not only to foster entrepreneurship, as do the other universities in this subset and nationally, but also to behave entrepreneurially as an institution, competing for R&D dollars and other forms of revenue. While innovation is more heavily featured, their plan does include talent- and place-related mission statements, goals, objectives, and performance metrics.

By aligning our community engagement with our academic mission, we will increase our focus on developing innovative solutions to urban challenges and enhance our visibility as a thought leader.

—WSU Strategic Plan Goal



Finding the Right "Front Door" Is Important

A common perception among university leaders was that external stakeholders often find it difficult to find the right entry point for communication.

One suggested strategy many institutions use is the creation of centralized ways to engage. Having a common, easily identifiable intake and coordination office within the university can help address this issue.

Building an Economic Development Culture Is Critical

University officials also expressed a desire to build an entrepreneurial and innovation ethos across their institutions. In fact, some universities have identified effective strategies to support this ambitious aim. At these institutions, economic development leaders stress the importance of working with partners across the university to encourage community-engaged research, department-specific entrepreneurship programs, and the embedding of talent, innovation, and place-based thinking into administrative structures and curricular materials.

Tracking and Measuring Progress in Economic Development Are Major Barriers

Nearly every university official we spoke with mentioned the difficulty of tracking and measuring their economic development progress. This complicates their desire to drive economic work as a core function for the university because, as academic institutions, they feel a responsibility to identify and share evidence-based best practices that are informed by accurate data.

Many offices use performance metrics (e.g., job creation, number of community events, capital investment, etc.), but it is difficult for them to determine the impact of these input and output measures. That said, university offices that have developed their own internal strategic plans, such as UNC and UGA, seem to more clearly understand how they are performing compared to their stated goals.

Awards from major university economic development associations, like the UEDA and APLU, can help signal which programs are making an impact, but the lack of rigorous program evaluation in university economic development makes it difficult for them to feel comfortable asserting themselves as authoritative economic development leaders in their communities.

North Carolina State University: Establishing the Right Economic Connections

Navigating and coordinating internal and external economic development networks is critical. NCSU's approach to boosting economic opportunity includes a focus on driving area business attraction by leveraging its Office of External Affairs, Partnerships and Economic Development (OPED). OPED has developed a strong ability to effectively identify, connect and manage potentially impactful partnerships between outside entities (e.g., local and state governmental agencies, community-based organizations, private-sector companies) and university assets (e.g., faculty, students and economic development staff within other departments).

NCSU relies on extensive relationships with faculty and staff because pairing the most appropriate university contact with a business or community partner is critical to any successful engagement. One of the most important relationships in the OPED's work is with the North Carolina Department of Commerce, the state's economic development agency. This relationship allows NCSU, which, as a land-grant university, has a statewide mission, to be at the center of state efforts to create jobs and drive capital investment throughout the state.

Economic Development Office(s) Structure and Strategy

Taking an even closer look at university-led economic development structure and strategy requires examining the operations, mission and role, and leadership and engagement of the office(s) that lead talent, innovation, and place-based efforts at the universities.

Presidential Oversight and Engagement

Given the critical roles they play in the ultimate success of a university, commitment and engagement from presidents or chancellors on economic development can have a significant impact. This engagement can take many forms: for example, at UP, the president has been at the center of driving redevelopment and innovation in Philadelphia. While the offices that lead talent and innovation efforts do not directly report to the president's office, the office of government and community affairs, which coordinates place-based engagements, does. This direct reporting relationship allows the president's office to play a regular and guiding role in economic development.

While it does not employ such a presidentially-driven approach as UP, ASU also has centered its economic development efforts in a unit that reports directly to their president. Staff within Knowledge Enterprise, which leads economic development at the university, stated in an interview that ASU's president is the most credible and critical advocate for economic development in the Greater Phoenix region. At ASU, the president is regularly involved directly in conversations with employers that are considering starting or relocating a business to the area.

Even at universities that employ a more decentralized approach, such as NCSU, the ability to leverage the president's office to push economic development strategies has been useful. Despite being several layers removed from the president's office, the director of economic development within NCSU's office of partnerships and economic development is able to regularly communicate with the president's office and leverage its resources and clout to take advantage of business development opportunities that benefit both Raleigh and university stakeholders.

All of the 12 institutions we studied had a medium to high degree of presidential engagement. There are several universities where either a president's focus on economic development or an office's ability to leverage the president's authority has multiplied the talent, innovation, and place-based efforts of the university. In interviews, it was clear that offices are looking to presidential direction as a guiding force for their approach and that they welcome engagement from university leadership, especially as an advocate for more economic resources.

We take responsibility for our community. Economic outcomes. Social outcomes. Health and well-being outcomes.

This is the charter of the new American university model.

—Arizona State University
president Michael Crow

Funding

While universities have invested significant resources in economic development programs, services, and facilities, most of the offices are only able to sustain their operations and programming if they can secure and blend three external revenue sources: federal grants, funding from local and state economic development organizations (EDOs), and philanthropic support.

Many of these offices utilize grant funds provided by the U.S. Economic Development Administration (EDA), National Institute of Science and Technology, and other federal organizations. In addition to grants, the federal government also contributes to these university efforts through agricultural, marine, and other extension funds. State EDOs also play a key role in the funding of these efforts. Many states provide earmarked funds for particular economic and community development programs, but these are subject to the annual budget appropriation process and the priorities of gubernatorial and legislative leaders.

In addition to these state and federal government resources, many offices have leveraged and/or partnered with university foundations to provide additional funds to support key programs. Multiple university officials cited the value of foundation resources because they often have fewer restrictions and longer terms than other grants. For example, the MSU Foundation funds and leads a range of startup supports, including the Conquer Accelerator and several capital access programs.

Overall, this blended financing approach allows universities to focus on dedicating limited resources to core educational functions and in some ways provides these offices with a

degree of flexibility over their work by allowing them to pursue, secure, and deploy funds that align with their priorities. However, there are also significant costs to this approach. From a programmatic standpoint, relying on grant funds often leads to promising programs only being able to operate as long as the grant is active. When these resources are no longer available, it can be difficult for universities to step in and fill the gap.

Staffing

We saw wide variations in size and operational staffing models. Most universities in our study complement their staff teams with entrepreneurs-in-residence and student interns. The institutions can make use of public- and private-sector expertise, provide mentorship, and open career pathways for students through these positions.

Mission and Role

We also compared the mission and role of economic development offices from an operational standpoint. This included a review of whether those office-level strategic plans were aligned with broader university strategic planning efforts.

While a few offices noted that they have internal guiding documents or performance metrics that they use to guide their work, most do not have a publicly available strategic plan. We were able to access two office-level strategic plans for this assessment and both were relatively robust and well-aligned to university guiding documents.

Leadership and Engagement

In addition to leveraging internal resources, building and maintaining external partnerships with EDOs and community-based organizations is important for driving talent, innovation, and place-based improvements at universities and in their communities.

Building an Infrastructure for Impactful Economic Engagement

Listed below are the elements that can have the most impact on effective university economic engagement, as evidenced across the institutions we studied.

Structure

- Align with the broader university organizational model
- Comprehensively address all three economic development categories
- Prioritize investment and support for the categories that fall within the university's mission
- Support, guide, and work to align economic development efforts across the university
- Establish a "front door" to reduce barriers to collaboration for internal and external stakeholders

Strategy

- Effectively scaffold and align mission statements, visions, goals, objectives, and performance metrics
- Establish a clear, achievable, and measurable roadmap to guide future investment and prioritization decisions
- Increase awareness of the economic development priorities within broader competing interests

Presidential Engagement

- Provide guidance and direction for talent, innovation, and place-based investments to ensure that these efforts align with the institution's core mission
- Elevate economic development as an institutional priority
- Demonstrate university commitment by actively participating in business attraction, community development, and other economic efforts
- Increase community-engaged research by encouraging and incentivizing faculty and staff to participate and lead economic development work

Investment

- Identify and blend funding from internal and external sources
- Effectively leverage technology transfer, research grants, and other entrepreneurial activity to support ongoing innovation-related efforts

Nearly every office that was included in the study cited various associations, EDOs, community groups, and other networks that they support. Some do this through dedicating staff time, serving in leadership roles, or providing financial resources.

Staffing

- Establish clear roles for offices and staff to ensure they are well positioned to advance priorities
- Recruit and support leaders that can effectively build and coordinate partnerships
- Appropriately leverage student positions to support experiential education in economic development
- Identify and encourage industry leaders to serve in informal and formal mentorship roles

Partnerships

- Intentionally build strong relationships between university leadership, faculty, and staff to ensure there is mutual awareness of all potential economic development work
- Actively participate in community and industry organizations to identify potential opportunities for collaboration
- Engage with local, regional, and state EDOs on business attraction, entrepreneurship, innovation, and other economic programs
- Regularly communicate with other universities

Structure and Performance: Key Takeaways

- There are significant variations among university economic development structural, staffing, and operational models.
- Regardless of their structural approaches, some universities have created a "front door" to reduce barriers to partnerships with businesses and community-based organizations by creating a centralized and simplified pathway for these external stakeholders.
- When compared to the entire university workforce, the number of staff members who are primarily focused on economic development is relatively small.
- Universities can stretch their programming capacities by drawing on foundation, state, and federal funds, but short-

- term grants lead to eventual decisions about how to fund promising efforts once the funds are exhausted.
- Staffing approaches are unique to each university, but those with smaller teams are often more tightly connected to the president or chancellor's office and use this authority to leverage internal resources and expertise to multiply their impact.
- While having a direct reporting relationship with the president or chancellor is not required for a strong economic development impact, direct engagement was an asset of many of the high-performing universities we reviewed.

Talent, Innovation and Place

From incubators and accelerators to R&D and capital access, universities are enhancing economic development through an array of compelling ideas and resources related to talent, innovation and place.

Talent

These engagements go beyond the core educational mission of the university and are targeted to support local, regional, or statewide economic development goals.

Figure 4: Types of Talent Engagement, by University

University	Entrepreneurship	Makerspace	Experiential Education	Education, Workforce Development & Other
Arizona State University	x	x	x	
Georgia Institute of Technology	x	x		
University of Georgia	x	x		
Indiana University Bloomington	x	x		
Michigan State University	x	x	x	x
University of Michigan	x	x	x	
Wayne State University	x	x	x	x
Duke University	x	x	x	x
North Carolina State University	x	x	x	x
University of North Carolina at Chapel Hill	x	x	x	
University of Pennsylvania	x	x	x	x
University of Wisconsin-Milwaukee	x	x	x	x

Entrepreneurship

In addition to reviewing undergraduate, and graduate degree programs, we also identified many high-quality and supplementary entrepreneurship programs, such as Georgia Tech's CREATE-X program, at right.

Makerspaces

Makerspaces are defined by industry experts as "non-program based community workspaces that provide equipment for specific sectors of manufacturing (e.g., technology, 3D printing, woodworking, food) and provide the tools, training, and specialized equipment necessary for creating and building physical products." These informal and entrepreneurial learning environments became more prevalent on college campuses in the early 2000s and are now seen as a key entrepreneurial and talent development resource. We identified these programs at every one of the universities we reviewed.



Georgia Institute of Technology: CREATE-X

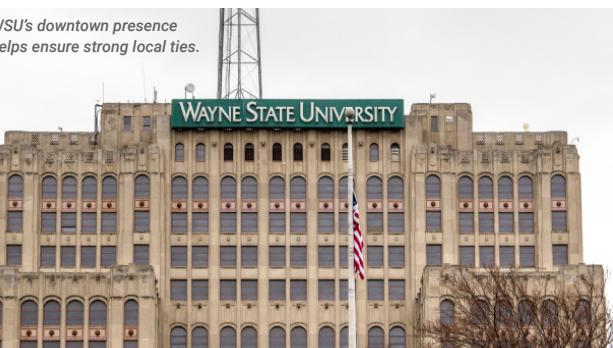
CREATE-X is an innovative model blending a curricular and programmatic approach, which allows students both to earn credits and explore entrepreneurship by launching their own startups. In addition to receiving legal assistance and intensive coaching, these student entrepreneurs receive valuable seed funding. This program, which serves students from across multiple departments, has seen tremendous growth over the last six years and has now engaged over 4,000 students and launched 159 startups, which have been collectively valued at over \$310 million.



Photo courtesy of University of North Carolina at Chapel Hill

Experiential Education

In addition to providing academic and programmatic supports, most universities included in our study offer experiential education programs, which focus on hands-on learning and work experience. Initiatives in this category include fellowship and internship programs but, given the wide variety of these types of efforts, we focused on those that provide financial resources and are connected to economic development goals.



Wayne State University: Detroit Revitalization Fellows

This talent- and place-focused program is designed to produce leaders that can catalyze and drive progress within Detroit's civic, community, and economic development landscape. Participants engage in a rigorous, two-year leadership development program while working full time at organizations delivering programs and leading projects across Detroit and Southeast Michigan. As full-time employees throughout the duration of the fellowship, they are provided with individual professional development support, a training allowance, and a significant amount of group leadership development training. Over 80 students have been through the program so far and the university is in the process of developing a strategic plan for the future of this experiential education program.

University of North Carolina at Chapel Hill: Be A Maker (BeAM) Makerspaces

At UNC, students have access to a diverse network of makerspaces that encourage entrepreneurs to come together to design and make physical objects for education, research, entrepreneurship, and recreation.

These spaces are equipped with emerging and high-end technologies, such as 3D printers, lasers, and other electronics. These facilities hold regular workshops, trainings, and other group activities, as well.

Education, Workforce Development and Other Programs

While the majority of talent development programs identified in the study focused on entrepreneurship, we were able to identify several innovative and engaging programs that fell into a broader talent development category, which includes education, workforce development, and other talent programs. We identified these programs at every one of the universities we reviewed.

Talent: Key Takeaways

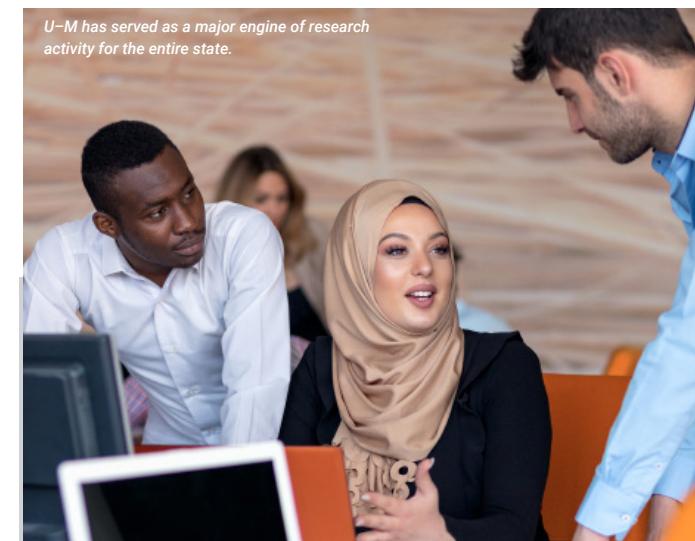
- While all the universities included in the study offer entrepreneurship and makerspace programs, we were only able to identify a few workforce development programs.
- Entrepreneurship is a major focus within university talent development efforts, with universities employing a variety of makerspace, experiential education, and other programs to complement their academic offerings.
- While this study required a dividing of program types, it is clear that many of the most impactful entrepreneurship programs also drive innovation, technology transfer, and startup support.
- Makerspaces, which are a relatively new feature on college campuses, are deployed across all of the universities included in the study, but those that provide mentorship, workshops, and programming options in addition to technologically-advanced workspaces appear to be the most promising.
- Traditional workforce development programs are not particularly common at these universities, with most explaining that community colleges in the state fill this gap, but there may be more opportunities for premier research universities to play a role in this space.

Innovation

These engagements are intentionally designed and targeted to foster and support knowledge creation, transfer, and application in ways that serve community and economic development goals.

Figure 5: University R&D Spending

University	R&D Spending (\$000, 2017)	National Rank in R&D Spend, 2017	Eight-Year Percentage Change (2010–2017)	Three-Year Percentage Change (2014–2017)
Arizona State University	\$545,016	44	65%	28%
Georgia Institute of Technology	\$804,301	24	31%	11%
University of Georgia	\$455,432	53	54%	28%
Indiana University Bloomington	\$540,421	45	204%	162%
Michigan State University	\$694,917	32	61%	32%
University of Michigan	\$1,530,139	2	29%	13%
Wayne State University	\$227,728	99	-11%	4%
Duke University	\$1,126,924	8	15%	9%
North Carolina State University	\$500,445	47	39%	12%
University of North Carolina at Chapel Hill	\$1,102,063	11	46%	11%
University of Pennsylvania	\$1,374,293	4	64%	66%
University of Wisconsin–Milwaukee	\$54,181	192	-24%	-11%



University of Michigan: Venture Center

The U-M Venture Center is the hub for all university startups that leverage the institution's intellectual property. This center, which is managed by the Office of Technology Transfer, provides the access point for a range of tools to support entrepreneurs and their companies. The Venture Center team, in partnership with their industry network, identifies challenges and opportunities and helps startups set up a plan for success and sustainability. As the major supporter of startups developed at U-M, it should be noted that this program has contributed to the university's strong innovation performance and the fact that 60 percent of startups launched in the last ten years have stayed in Ann Arbor.

Research and Development

A key component of a university's innovation performance is its ability to fund and execute R&D projects which can form a foundation from which universities can develop new and innovative technologies and products. Our analysis of university innovation incorporates both the amount of annual R&D spending and the growth in this activity (see figure 5, above).

Technology Transfer

This term refers to the process by which universities transfer technology to industry for commercial development through the disclosure, patenting, and licensing of innovations. All the universities included in our study have offices dedicated to this lifecycle. We examined several metrics from the most recently published technology transfer survey data, including invention disclosures, patents issued and startups launched.

The University of Michigan topped out the rankings in invention disclosures and patents issued (502 and 171, respectively), while Penn launched the most startups (55).

The universities we reviewed ranked anywhere between six and 174 on the Milken Institute's National Technology Transfer ranking in 2017.

Accelerators

While every university in the study also offers at least one accelerator program, many have multiple options available to students, faculty, and community members. Accelerators are typically highly selective, short-term programs that invest capital in chosen companies. These programs generally accept companies in cohorts, as opposed to on a rolling basis, and provide intense and targeted mentoring and supports to participants. Typically, at the end of the program, companies participate in pitch and fundraising events and/or competitions with potential investors. Throughout the research process, there were several accelerators that stood out as particularly comprehensive, innovative, and/or effective.

Capital Access

Starting and growing a successful business takes significant financial resources, and recent research suggests between 90 and 95 percent of entrepreneurs require some amount of financing to start their businesses. This is especially true for on-campus startups, which means that without access to capital funds, even the best student and faculty businesses and products will struggle to get off the ground. Our research identified early-, mid-, and late-stage capital access programs at nearly every university included in the study, several of which received additional consideration given their unique approaches and documented impact.

Technical Assistance

The final innovation program type we analyzed fell into the technical assistance category. This catch-all program type is designed to capture all of the direct services that universities provide to support and grow businesses. For example, this category includes programs that support small, minority-, and women-owned businesses; university-based economic development centers; small-business development centers; Manufacturing Extension Partnerships; and a wide range of business planning and development consultative services.

Given the broad definition for this program type, there were many robust technical assistance programs led by universities in the study.



Michigan State University: Conquer Accelerator

The Conquer Accelerator is an intensive, 10-week program that regularly takes on startups that have graduated from MSU incubation programs and provides startup teams \$20,000 in funding, one-on-one mentorship, a creative working space, and other resources. Since its creation in 2015, the accelerator has invested \$400,000 in 20 separate companies. Of these companies, 15 are operating and 10 have raised a total of \$2.3 million in outside investment.



North Carolina State University: Wolfpack Investor Network (WIN) and Chancellor's Innovation Fund (CIF)

The WIN leverages the university's alumni network and investors with portfolio companies to support their growth and success using an angel investing platform. To multiply its impact, the WIN makes co-investments in promising ventures with Duke and UNC through the Triangle Venture Alliance.

The CIF program awards up to \$50,000 to support short-term, commercially-focused research projects and provides them with access to program staff and licensing professionals who can review their progress and help them prepare for industry engagement.

Innovation: Key Takeaways

- Innovation, as defined in this study, is the most robust area of programming for these leading research universities.
- The universities included in this study are among the top investors in R&D nationwide.
- While all of the universities have formalized their technology transfer efforts, several universities, including U-M, have a superior ability to catalyze the discovery of new technologies and drive the creation of new companies and commercial products.
- Incubators and accelerators are very common on these campuses, but the levels of mentoring, networking, and financial support offered by these programs fall on a wide spectrum.
- Capital access programs across the universities rely heavily on alumni networks, private donors, and foundation resources, but targeted state investments in these programs can allow them to advance state industry priorities, increase the likelihood these resources remain in the state's economy, and potentially generate a strong return on state investments.
- Technical assistance and consulting programs are excellent opportunities for universities to match their intellectual expertise with companies in the field that could benefit from their research and financial resources. In addition to increasing a university's innovation impact, these technical assistance efforts can also drive talent improvements through the real-world experiences that students, faculty, and staff can access through these partnerships. They can also accelerate place-based growth by supporting local and regional businesses that are critical pillars of the communities in which they are based.

Place

This diverse spectrum of efforts is primarily designed to enhance the attractiveness, competitiveness, and prosperity of communities beyond university boundaries.

Research Parks

Research parks function as physical environments that can generate, attract, and retain science and technology companies and talent in alignment with the economic development missions of their funders and stakeholders, which can include universities as well as other public, private, and federal research laboratories. Experts estimate that there are at least 1,000 research parks operating across the world.

Recent trends suggest that while the number of research parks being constructed is declining, the size and diversity of research park tenants (government, nonprofit, for-profit businesses, etc.) is increasing. Many of these parks are led or co-led by universities or teams of universities. These valuable assets can drive place-based innovation, which not only contributes to the economic growth of companies onsite, but also cities and towns. Often serving as the core for community revitalization efforts, these parks represent opportunities for universities to foster economic growth and prosperity and make a significant place-based impact.

University Extension Programs

The three land-grant universities that were included in the study (MSU, NCSU, and UGA) all operate large, diverse, and impactful extension offices. These programs, funded with federal dollars, were designed to support agricultural education and research application in communities across their states.

As the agricultural sector has changed over the last century, university extension has evolved to meet regional education and industry needs. For some university extension offices, which operate in nearly every county of their respective states, agriculture remains a priority. But in other places, extension offices have identified opportunities to expand their expertise and capacities to engage local communities with a wide spectrum of educational trainings and programs. These federal resources are now being deployed across a variety of community, urban and rural development programs that support place-based economic growth far beyond the boundaries in which these institutions are located. It is for this reason that university extension offices, programs, and funding represent an impactful asset that land-grant universities can leverage to drive place-based economic development.

Figure 6: University Program Description and Impact

University	Program	Description and Impact
Georgia Institute of Technology	Economic Development Lab	As the university's U.S. EDA Center, the lab supports governments, communities, foundations, entrepreneurs, and small businesses to foster value creation by applying innovative ideas, technology, and policy to initiatives focused on economic growth. This program offers a variety of policy, economic, and fiscal project-based services to local, regional, state, national and even international clients. While these services are available to clients across the globe, the lab charges discounted rates to local and state-based entities to ensure that their work makes a lasting impact in Atlanta and Georgia.
University of Georgia	Archway Partnership	This partnership works in concert with communities to address critical community and economic development issues, including education, workforce development, leadership, health and welfare, and overall quality of life. Archway engages directly with and serves as liaison between communities and the faculty and staff that execute projects. Archway funds dozens of projects each year and has engaged hundreds of community leaders in their projects.
Wayne State University	Public Safety Initiative	In 2008, the OED partnered with the Wayne State University Police Department to launch a public safety initiative that contributed to a significant reduction in crime rates in the neighborhoods surrounding the university. The university's unique approach, which received national attention, involved WSUPD officers spending a majority of their time operating outside the university boundaries. The department's officers are commissioned by the Detroit Police Department and possess the same enforcement authority. While the two departments collaborate closely, most arrests in Midtown Detroit are made by WSUPD officers and that area of the city has experienced double-digit declines in crime since implementing this collaborative policing approach. In terms of its economic development impact, a 2015 <i>New York Times</i> story noted that because "most small businesses operate on razor-thin margins and cannot afford the financial toll of even petty crime, the force has been one of the area's biggest assets, residents and owners say."
Duke University	Self-Help	Duke University and Self-Help work together to revitalize Durham's urban neighborhoods with a focus on home ownership and affordable housing. The university has contributed over \$12 million and the partnership formed a land bank that has become a model among community-based housing initiatives.
University of Pennsylvania	Netter Center for Community Partnerships	Housed within the Office of Government and Community Affairs, the Netter Center is the university's primary community development entity, which applies UP's intellectual resources to a broad range of complex and interconnected problems. Through the center, UP currently leads three core activities (academically based community service, direct traditional service, and community development) that aim to drive economic and community prosperity in West Philadelphia and the city as a whole. The center, which began by offering four courses, has now developed an estimated 200 courses that link UP students to work in the community.

Place: Key Takeaways

- While place-based engagements, as defined in this report, are the least common programming type identified, they often have the greatest opportunity to deliver targeted economic development impact.
- While the private universities rank at the top of place-based performance, several public universities, including NCSU and WSU, excelled in this category.
- Several of the highest-performing universities in this category have enacted strategic plans that demonstrate a commitment to place-based engagement.
- Research parks are an increasingly valuable asset for driving innovation, corporate and university cluster partnerships, and alternative working and learning environments.
- In addition to the research parks included in this study, we identified many others that are either currently being planned or constructed by universities in this study, including MSU, UGA, and UWM.
- While universities commonly replicate each other's talent and innovation program models (e.g., makerspaces, incubators, accelerators), it appears that universities operating in these spaces are attempting to craft programs more tailored to their communities' unique needs.
- These are important resources for universities, cities, and states and it appears that these offices are increasingly developing methods of deploying federal resources in new ways that drive economic development.
- Place is an area of economic development that can also be prioritized through talent and innovation programs to increase the impact of growth in these areas in local communities.

Clusters

Universities do not operate in isolation, but form clusters that allow them to maximize their economic development outcomes. Here's how the Michigan cluster performs relative to those in North Carolina and Georgia.

North Carolina is the most established and well known of the three clusters, widely recognized for its performance in innovation. But there are several areas where the Michigan cluster institutions are competing with—or outperforming—those in North Carolina.

For example, the Michigan cluster has seen slightly larger growth in R&D spending and has similar collective technology transfer performance. Not only is Michigan's performance in this area similar to North Carolina's, but it is actually significantly stronger than the average university.

Figure 7: Combined University Cluster R&D Spending

Cluster	Combined Growth in R&D Spending (2010–2017)	Average R&D Spending (\$000, 2017)	Total R&D Spending (\$000, 2017)	Total Inventions Disclosed (FY2019)	Total Patents Issued (FY 2019)	Total Startups (2019)
Michigan	31%	\$817,595	\$2,452,784	742	256	27
North Carolina	30%	\$909,811	\$2,729,432	757	220	47
National Average	24%	\$83,498	N/A	N/A	N/A	N/A

Figure 8: Examples of University Cluster Collaboration

Cluster	Example One	Example Two	Example Three
Michigan	The University Research Corridor , consisting of Michigan's three R1 universities, serves as a hub and coordinating entity to one of the nation's top academic research clusters. According to a recent analysis, the URC made an economic impact of \$18.7 billion on the Michigan economy in 2017 and created nearly 80,000 jobs.	The Michigan Corporate Relations Network began as a collaboration between six of Michigan's leading research universities, including the three in the Michigan cluster. With support from the MEDC, it has expanded to 15 institutions. This network engages businesses across the state and provides them with access to university expertise.	Created in 2012, the award-winning Michigan Translational Research and Commercialization Program accelerates and multiplies university technology transfer efforts. It began as a partnership between the three Michigan cluster universities and the MEDC, but has since expanded to additional universities. MTRAC has allowed the universities to increase the impact of their research, leverage each university's strengths, and make innovative joint investments across a range of topic areas.
North Carolina	UNC, NCSU and Duke anchor Research Triangle Park and Research Triangle International . Created in 1959 by leadership from the state's political, industry, and educational leaders, RTP was designed to be a place that could create economic opportunity and retain talent. According to RTP's research, it has had an economic impact of \$5.5 billion and job creation, and real estate, sales, and income tax yields have increased.	The Blackstone Entrepreneurs Network (BEN) provides an integrated network of entrepreneurial and start-up supports that are similar to those established in Silicon Valley and Boston. BEN's charitable foundation partnered with North Carolina cluster universities on this initiative, which has served as the foundation for additional capital access initiatives.	The three North Carolina cluster universities are leveraging a \$250,000 EDA grant that Duke was awarded to build a joint alumni network of angel investors, known as the Triangle Venture Alliance . This joint initiative leverages the individual angel investor networks at each university to multiply their impact. According to interviews with university officials, this collaborative network has begun investing in companies as a cluster.
Georgia	The Georgia Research Alliance (GRA) focuses on expanding research capacity at universities, commercializing technologies, and supporting startups. This coalition offers a range of services, including experiential talent attraction and venture capital investment through a public-private fund. While there are eight universities in this alliance, UGA and GT represent the two largest institutions and play a key role in its work.	The collaborative recruiting process involved in securing Blackrock's selection of Atlanta as the site for its expansion represents a major accomplishment for these universities. This business attraction effort is expected to add 1,000 jobs in the area and the proximity to university talent and GT's Tech Square research park were cited as key factors in the decision.	GT's Tech Square research park is a major asset for the university, as well as the entire Atlanta metro area. This space serves as the home for many companies and GT offices and also hosts multiple UGA offices, which allows for closer collaboration on a number of programs and increased economic development activity in the area.

After considering the examples and information collected during interviews, it is our assessment that the North Carolina cluster has the most integrated collaboration, followed by the Michigan cluster, and then the Georgia cluster. While the Michigan and Georgia clusters are working together through various organizations (i.e., URC, GRA, and RTP) and collaborating on various programs and projects, the North Carolina cluster's head start has allowed it to establish the most collaborative and impactful cluster among the three analyzed in this study.

North Carolina Cluster

This cluster has a significantly longer history of collaboration, which has provided the universities with decades to grow and evolve their partnership and brand. These universities are now well integrated, partner on initiatives across all three economic development categories, and have built international brand recognition for the Research Triangle cluster. Individual university strategic plans name the other cluster institutions and list explicit goals to increase their collaboration on projects and initiatives. This cluster is well connected and focuses on leveraging their research capacity; proximity; industry clusters; and local, regional, and state EDOs to improve the local economy. They also are focused on bringing in a larger set of public and private universities to recruit talent, create jobs, and generate investment across the entire state. They have also partnered on many programs and initiatives that aim to multiply their investments.

Michigan Cluster

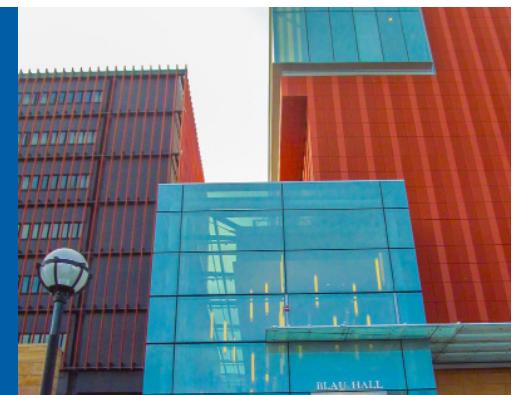
Michigan cluster universities work closely together through several cluster and statewide partnerships across all three components of economic development. The URC links the universities and enables them to be in close collaboration and highlight their partnerships. In addition to the URC, these universities have worked together with regional and state-level EDOs to partner on programs and initiatives. During interviews, staff from all three Michigan institutions reported that they see their peer universities as partners and regularly communicate to share best practices and identify potential opportunities for collaboration.

Georgia Cluster

The Georgia cluster, which includes other universities in the Atlanta area that were not included in this study, (e.g., Emory University and Georgia State University) collaborates most on innovation and place-based economic development. Interviews and research suggest the strength of this cluster is in working together to attract business expansion and capital investment. Other observations suggest the Georgia cluster universities have a less prominent sense of competition amongst one another than institutions in other clusters. They also have found ways to share space at GT's Tech Square research park in Atlanta, which staff at the universities believe can drive further collaboration.

Clusters: Key Takeaways

- Given their strong individual and collective performance in talent, innovation, and place, it is possible, if not likely, that these three clusters are among the highest performing in the nation.
- The Michigan cluster's performance, when compared to the nationally renowned North Carolina cluster, was strong across all three categories.
- The North Carolina cluster appears to be the most integrated, but the Michigan cluster is making progress and has a more comprehensive economic development partnership than the Georgia cluster.





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