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Prepared for the Mississippi Development Authority  
and the Mississippi Research Consortium

# MISSISSIPPI INNOVATION PLAN



# ACKNOWLEDGMENTS

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The **Mississippi Development Authority (MDA)** is the state's premier economic and community development agency. Companies of every size—from homegrown startups to international corporations—depend on MDA for business development assistance; support with business incentives; and access to talent from workforce training programs, colleges, and universities. MDA also helps small to midsize businesses become competitive in national and global economies through a comprehensive series of international trade and investment programs.

<https://mississippi.org/>



The **Mississippi Research Consortium (MRC)** aims to develop and sustain nationally competitive research programs in the state of Mississippi by building the necessary human resources, establishing critical scientific infrastructure and partnerships, and expanding opportunities for technology growth. Formed in 1986, the MRC includes the state's four research universities: Jackson State University, Mississippi State University, the University of Mississippi, and the University of Southern Mississippi.

<http://msresearchconsortium.org/>

## CONSULTING TEAM



**TIP Strategies, Inc.**, is a privately held Austin-based firm providing consulting and advisory services to public and private sector clients. Established in 1995, the firm's core competencies are strategic planning for economic development, talent strategies, organizational development, resiliency planning, and equity initiatives.

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**Research Bridge Partners** bridges the gap between university labs in thin translational markets, where two-thirds of National Institutes of Health (NIH) funded research happens, and the California and Massachusetts biotech hubs, where two-thirds of biotech dollars are invested. Organized as a 501(c)(3), Research Bridge Partners manages an innovative, mission-focused venture capital fund to support this work.

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<https://www.researchbridgepartners.org/>

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# INTRODUCTION

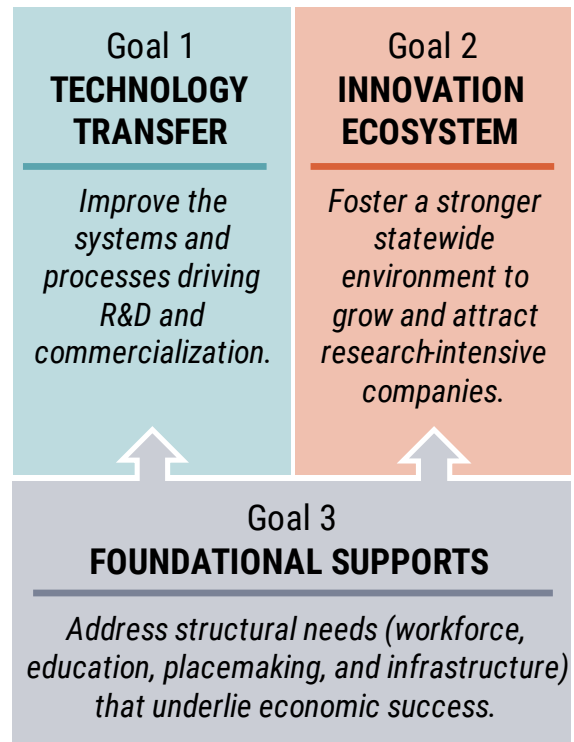
Mississippi is a central part of the American story. The state’s geography, history, rich African American culture, music, and cuisine have influenced and transformed the country. In addition to Mississippi’s positive contributions, the state has borne the brunt of some of the worst disasters in US history, including the worst flood in US history (the Great Mississippi Flood of 1927), the costliest hurricane in US history (Hurricane Katrina’s landfall on the Mississippi Gulf Coast in 2005), and the worst accidental marine oil spill in global history (the BP Deepwater Horizon oil spill off the coast of Mississippi in 2010). Yet despite the hardships caused by these disasters, each has provided unexpected opportunities for a brighter future.

Two years after the 1927 flood, the US Army Corps of Engineers established its research and development (R&D) headquarters in Vicksburg, a federal research facility that contributes \$1.2 billion of investment in innovation today, roughly twice as much as Mississippi’s research universities combined. More than a decade after the BP oil spill and nearly 20 years post-Katrina, Coastal Mississippi is experiencing a broad-based urban renaissance with mixed-use developments and walkable downtown revitalization efforts underway from Bay St. Louis to Ocean Springs and Pascagoula, along with emerging innovation districts in Gulfport and Biloxi. The common thread through each of these disruptions is the resilience of Mississippi’s people and its communities. In the past, when disruptions (natural disasters, economic recessions, the COVID-19 pandemic) have threatened the livelihood of Mississippi families and companies, local and state leaders have not accepted defeat. They have looked forward to a more prosperous economy for the state’s people.

This resilient outlook will be tested in the coming years. Technological change is rapid. Local and state economies must be willing to adapt to these and a multitude of other challenges. In this context, Mississippi cannot afford to conduct business as usual. Drawing from its higher education institutions, private industry, and economic development organizations, state leadership must act quickly and consistently to build on its assets and pursue new opportunities.

To secure Mississippi’s place in the national conversation, building an innovation-based economy will be essential. The *Mississippi Innovation Plan* is about being part of a vital transformation—of building an innovation-based economy in Mississippi. The path forward will be built over the next 10 years through economic reinvention, creativity, and a commitment to innovation.

FIGURE 1. PLAN FRAMEWORK



Source(s): TIP Strategies, Inc.



Why innovation? Because innovation drives industry. It drives the economy. It confers a competitive advantage on those communities that embrace it. Mississippi is no exception to this rule. Universities are an essential means to that end. And while universities are not the only component of an innovation economy, they are central to it. The primary emphasis of this plan is on strengthening the ties between the state's four principal research institutions and the associated networks that capture and retain the technology emerging from them.

How can Mississippi build an innovation-based economy? The state's best option for lasting prosperity is to invest in its existing innovation assets and to reorient its economic priorities to capitalize on these assets, which include the Mississippi Research Consortium (MRC), federal military and civilian research facilities, large and small technology companies, and most important, its human capital: entrepreneurs, science, technology, engineering, and math (STEM) workers, and students. The bottom line is talent. Without a commitment to developing, retaining, and attracting human capital, Mississippi cannot compete. As venture capitalists often say, the PI (principal investigator) matters a lot more than the IP (intellectual property).

Fortunately, the state has already laid a foundation for this work through the *Mississippi Science and Technology Plan* (the S&T Plan), developed in 2021 by the MRC. The S&T Plan identified three strategic priorities and seven emerging technologies. The *Mississippi Innovation Plan* builds on the S&T Plan's framework with specific recommendations for the MRC and for how the state can better capitalize on its research universities for economic development. This plan, however, is not only about the four MRC institutions and their surrounding communities. It addresses innovation centered on federal and military assets, such as the US Army Engineer Research and Development Center (ERDC) and the associated innovation hub, ERDCWERX, in Vicksburg; NASA's Stennis Space Center on the Coast; the US Department of Agriculture's Stoneville research center in the Delta; and large defense industry employers ranging from Ingalls Shipbuilding to Northrop Grumman and General Dynamics. In addition to large employers and anchor institutions, the state is home to a number of smaller, high-growth firms, such as Indegene, EdgeTheory, Camgian, Hyperion Technology Group, and General Atomics.

The major challenges to economic development—today and a generation from now—require innovative solutions. Building the pipeline of talent must be at the foundation of these solutions. Mississippi's high school graduation rates now exceed the US average, and the state has made enormous gains in elementary education performance. Mississippi has moved from last or near last in the country in third grade reading proficiency and fourth grade math proficiency to the middle in a span of just 10 years.

The state has also made significant strides at the postsecondary level. Mississippi is one of only 20 states that has at least three universities—Mississippi State University (MSU), the University of Mississippi (Ole Miss or UM),

### MISSISSIPPI SCIENCE AND TECHNOLOGY PLAN

The S&T Plan outlines three strategic priorities for moving Mississippi forward.

1. Grow R&D infrastructure, capacities, and resources to promote the expansion of Mississippi's emerging technologies, establish a knowledge-based economy, and maximize the state's global competitiveness.
2. Increase and diversify human capital and talent creation, retention, and repatriation.
3. Foster Mississippi's knowledge-based economy through the support of innovation, entrepreneurship, and advancement of intellectual property.

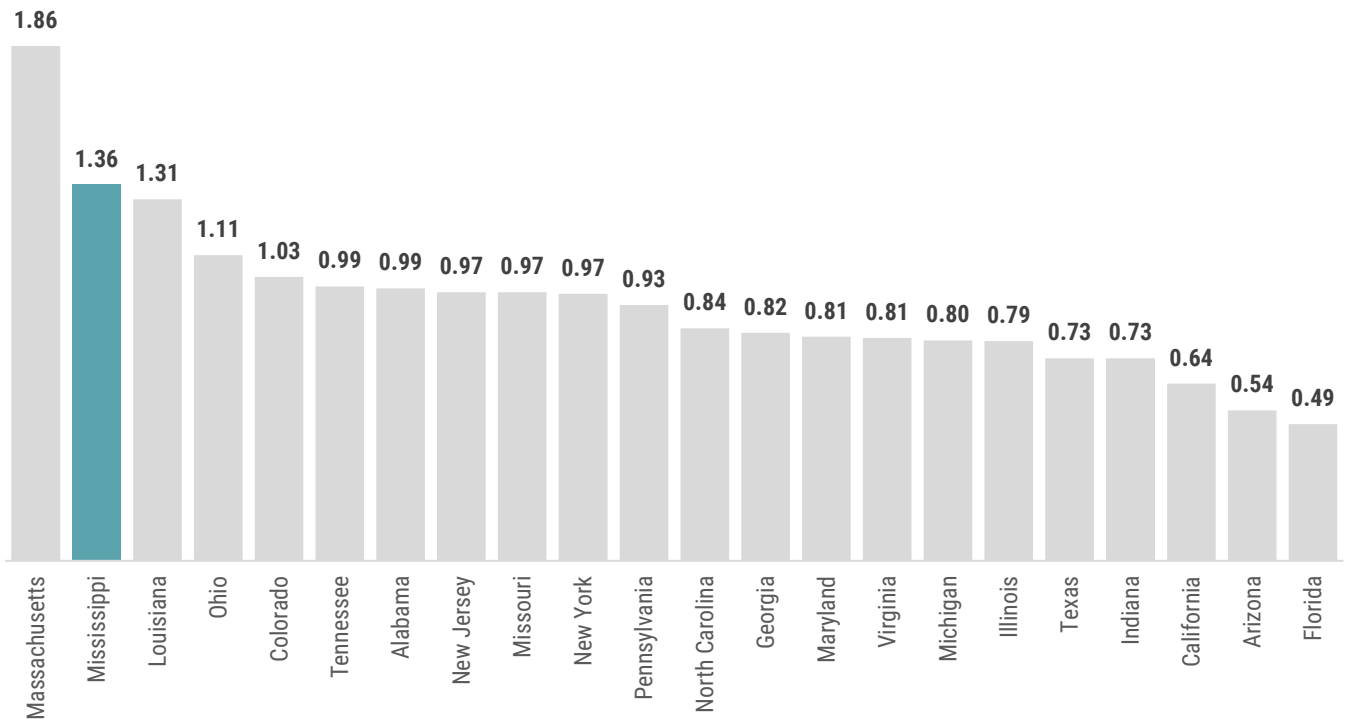
The plan also identifies seven emerging technologies as the focus for these efforts.

- Advanced Materials
- Autonomy
- Agriculture
- Biomedical/Healthcare
- Data Science
- Logistics
- Sensors and Diagnostics

Source(s): Mississippi Research Consortium, *Mississippi Science and Technology Plan*, 2021.

and the University of Southern Mississippi (USM)—that have earned the highest ranking, R1: Doctoral Universities—Very high research activity, according to the Carnegie Classification of Institutions of Higher Education. Among those 20 states, Mississippi has the smallest population and only Massachusetts has a higher number of R1 universities per one million residents. Broadening the list to include R1 and R2 universities (R2: Doctoral Universities—High research activity) adds Jackson State University (JSU), providing Mississippi with four R1 and R2 universities. Only 22 states, shown in Figure 2 (page 3), have a combined total of at least four R1 and R2 universities. Again, Mississippi has the smallest population among those states. And again, only Massachusetts has a higher number of R1 and R2 universities relative to its state population.

**FIGURE 2. NUMBER OF R1 AND R2 UNIVERSITIES PER 1,000,000 RESIDENTS**  
 AMONG STATES WITH A COMBINED TOTAL OF AT LEAST FOUR R1 AND R2 INSTITUTIONS



Source(s): Carnegie Classification of Institutions of Higher Education (2021); US Census Bureau, Population Estimates Program (2022); TIP Strategies, Inc.

## PROJECT APPROACH

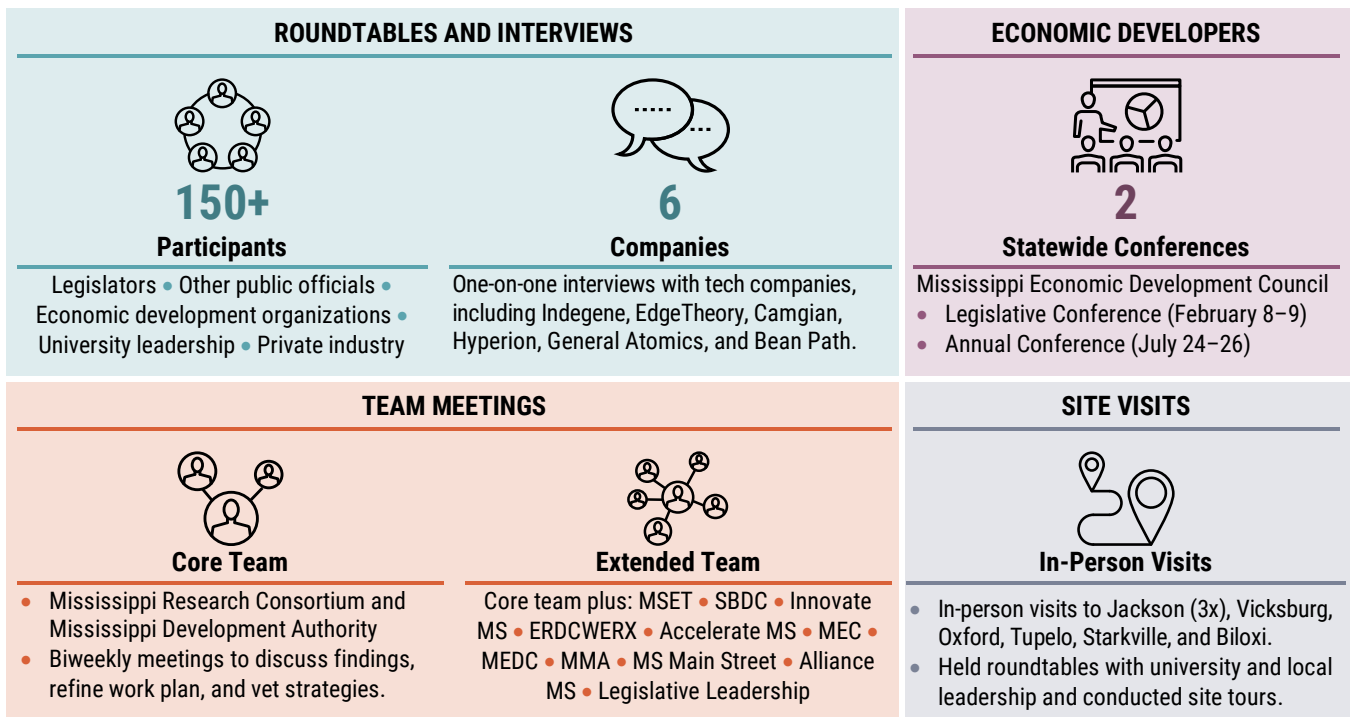
Looking to build on the state’s assets and expand on the work of the S&T Plan, the Mississippi Development Authority (MDA), in conjunction with the MRC, called for the creation of a strategic innovation plan. Through a competitive process, TIP Strategies, Inc., (TIP) was engaged to facilitate the planning effort using funding from the US Economic Development Administration (EDA) as part of the American Rescue Plan Act of 2021.

TIP’s planning model included a review of available materials, coupled with a targeted analysis of relevant trends and discussions with a broad range of experts. The consulting team then researched best practices, examined Mississippi’s human capital assets, gained consensus on broad goals and objectives, and identified possible strategies. During the final phase, these goals and strategies were built out into the *Mississippi Innovation Plan*, along with a separate matrix to guide implementation efforts. Interactive data visualizations were presented separately and are discussed in more detail in section 2, Key Findings.

Given that the scope of this plan extends to the entire state of Mississippi, it was crucial to cast a wide net in the stakeholder engagement process. From the beginning, TIP established regular meetings with a core group of individuals who included representatives from the four MRC universities and the Mississippi Development Authority (MDA). This core team was extended to include representation from other organizations, including the Mississippi Economic Development Council (MEDC), the Mississippi Manufacturers Association (MMA), Accelerate Mississippi, and the Mississippi Gulf Coast Business Council. This extended team served as the de facto steering committee and attended milestone meetings, such as the opportunity workshop during which the plan’s goals and strategies were vetted and refined.

Throughout the project, TIP leveraged the core and extended team members to connect with over 150 participants for individual interviews and roundtables to gather qualitative data. In-person site visits also had an important role in stakeholder engagement, with trips to the city of Jackson (including the MEDC Legislative Conference), Oxford, Tupelo, Starkville, and Vicksburg. During these visits, TIP toured research facilities and met with legislators, university technology transfer office (TTO) leadership, economic development organizations (EDOs), and local tech companies. A summary of the engagement activities is provided in Figure 3.

FIGURE 3. ENGAGEMENT OVERVIEW



Source(s): TIP Strategies, Inc.



# STAKEHOLDER INSIGHTS

As illustrated in Figure 3, TIP conducted extensive outreach that included a series of topical roundtables, interviews with leading technology companies, attendance at two MEDC conferences, and site visits to each of the university regions. This outreach was supplemented by regular input from a cross-cutting team of leaders who helped shape the plan framework. Hearing directly from stakeholders across the state on whether Mississippi can build an innovation economy, the TIP team took away several insights, which are summarized in this section.

Stakeholders were positive about progress in a number of areas including the following.

- **MRC collaboration.** The four universities have a history of working together on an ongoing basis to discuss mutual efforts and concerns.
- **NSF Engines.** Three of the universities have recently received significant grants from the National Science Foundation (NSF): \$1 million to MSU for advanced manufacturing and \$1 million to a joint initiative by JSU and USM for food security.
- **Emerging tech and innovation districts.** Opportunities for colocation hubs with a technology focus are burgeoning in several Mississippi geographies, such as Vicksburg, Gulfport, and Jackson.
- **Downtown quality of place.** Many cities in the state have the potential to better attract talent and companies, due to their sustained emphasis on redeveloping main streets, and could function as best practices for other locations (e.g., Tupelo, Oxford, Starkville, Ocean Springs, Pascagoula, Biloxi, Greenwood).
- **Successful startups and innovative large companies.** Within target sectors, like advanced materials, blue economy, aerospace and defense, IT, and agriculture, there have been a number of success stories that could be more broadly marketed.
- **Mississippi's new brand.** Mississippi has improved its national reputation through grassroots initiatives that embrace the state's rich cultural heritage (food, music, history, and diverse population) and thanks to intentional efforts such as the new "Mighty Mississippi" brand for business development promoted by the MDA.
- **Improvement in K-12 performance.** The state has a poor record of educational metrics relative to the US but has made significant improvements recently.

While discussions with stakeholders pointed to several areas that are moving in the right direction, concerns remained regarding critical topics.

- **Loss of talent to other states and regions.** Many former Mississippi residents, particularly in the Millennial and Gen-Z generations, look and move elsewhere for better career opportunities.
- **Lack of innovation network density.** Startup activity, risk capital availability, and professional services providers are all deep deficiencies in Mississippi.
- **Importance of revitalizing Jackson.** As the state's capital and the site of its only major airport, Jackson has a vital role in the overall economic health of Mississippi. The city must become an integral part of the state's efforts to grow and attract research and technology-intensive companies.
- **Narrow approach to economic development.** The state has a successful track record of incentivizing and recruiting large industrial relocations, but has not paid enough attention to startups, high-growth technology firms, and other cutting-edge investments necessary for building an innovation economy.
- **Overinvestment in buildings and underinvestment in people, companies, and organizations.** While physical sites like commercial office space are certainly important, human capital remains a serious challenge in the state.

# PLAN FRAMEWORK

The desired outcome for this engagement was a strategic innovation plan—a plan to grow Mississippi’s innovation economy. From the outset, the goal was to determine how best to capitalize on regional assets, human capital, and research capabilities. Although this objective pertains most obviously to the MRC’s technology transfer efforts, the framework of the plan developed into a more comprehensive scope that includes recommendations concerning other aspects of a successful innovation economy.

1. **Optimize Technology Transfer Systems and Processes.** TTOs at the four Mississippi research universities are responsible for connecting the academic research emerging from their institutions to the private sector. This transition from idea to market can take a variety of forms, from licensing to patent applications to spinning off startup companies. The first goal is to reduce the barriers that impede the MRC’s ability to support the growth of technology-based industries in Mississippi.
2. **Strengthen the Innovation Ecosystem.** Beyond the role of the MRC and its TTOs, a robust network of public and private resources is vital to the growth of an innovation economy. The second goal provides recommendations that will bolster this broader ecosystem by developing greater density of human capital, funding, and support services for entrepreneurial companies.
3. **Improve Foundational Supports for Innovation.** Without a growing base of skilled workers, commitment to quality of place, and well-functioning infrastructure, statewide efforts to foster an innovation economy cannot succeed. Supporting education and workforce efforts and expanding broadband access will be necessary for Mississippi to become a hub for high-growth companies. In addition, the revitalization of Jackson cannot be overlooked. Innovative strategies have a role in this process, especially those emerging from JSU and other higher education institutions. The revitalization of the city is essential. Jackson is not only the capital of the state; but it is also the largest city and the air hub for the state. In addition, medical and governmental institutions represent a major employment cluster. The opportunity to leverage these assets into a healthy innovation ecosystem benefits the city, as well as the entire state of Mississippi.

**Organization and Implementation.** A strategic plan is worth little without the organizational alignment and financial backing to implement it. Effective implementation will largely depend on the state’s ability to remove the structural barriers that prevent the MRC, the MDA, and other innovation-oriented organizations from improving Mississippi’s economy relative to the rest of the country. The plan includes multiple approaches for addressing these issues.

The *Mississippi Innovation Plan* represents a call to action to transform the economy in the state. This plan is not intended to facilitate incremental change. It does not seek for the state to merely catch up to other states or to make modest improvements in various state rankings. Rather it represents an opportunity to drive real, fundamental change in the way Mississippi thinks about its investments. For this reason, the plan has been designed with clearly stated, achievable goals and meaningful, actionable strategies. It identifies numerous “quick wins” and investments that, if undertaken, will add up to meaningful progress in a relatively short timeframe (three to five years). But it also includes bold, large-scale projects. While these bold projects are ambitious, they remain rooted in Mississippi’s strategic assets and strengths. Taken together, the plan provides a road map for making the state competitive. If fully implemented, the *Mississippi Innovation Plan* opens the possibility for long-term transformation with early indicators showing results and momentum in a five-year horizon.

# KEY FINDINGS

The creation of a vibrant innovation economy in Mississippi will require a concerted effort both by universities and research centers as well as local economic development organizations and the State of Mississippi. While national and global issues will continue to influence the region, a strong commitment to innovation is the only effective path forward. A review of this broader context is followed by a discussion of Mississippi's competitive position based on a comprehensive quantitative analysis.

## NATIONAL CONTEXT

This section highlights some of the forces shaping the US economy as it continues its long transition from a twentieth-century system of mass production and natural resource extraction to a twenty-first-century economy defined by technology and innovation. Since early 2020, the COVID-19 pandemic has caused many disruptions in the economy. Yet most of the large structural changes happening in the US economy and labor market were already underway. In most cases, these trends were accelerated and amplified by the pandemic, not created by it. While these factors are almost entirely beyond Mississippi's control, state and university leadership cannot afford to ignore them.

**CLIMATE RESILIENCY.** Extreme weather events, such as floods, tornados, blizzards, and heat waves, affect communities in profound ways. These short-lived, but often devastating, events are not new. What has changed is the frequency, intensity, and duration of these disruptions. The implication of extreme events linked to climate has helped make climate resiliency a top priority for companies and community leaders alike. Signals of this increasing concern can be seen in both corporate and municipal priorities—as well as in the decision of site selectors.

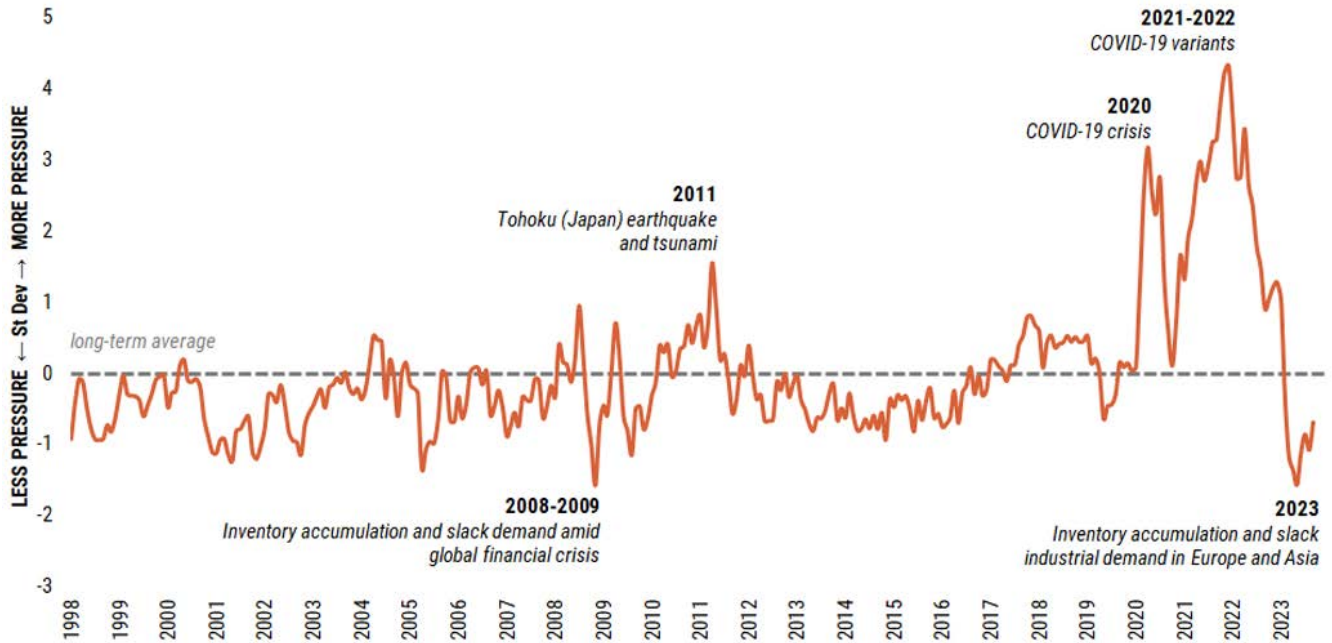
What is often missing from the conversation are the economic opportunities posed by these disruptions. Linking climate challenges more directly to economic development strategies opens up new ways of doing business. Using Mississippi's innovation strategy to capitalize on new target industries and changing consumer demands (with electric vehicles as just one example), these trends can attract new investment and help create a more resilient economy.

**SUPPLY CHAIN DISRUPTION.** The COVID-19 pandemic caused massive disruptions, shuttering businesses, sending households into lockdown, upending learning and childcare arrangements, and tangling supply chains around the world. While global supply chains were already strained by growing consumer demand and restrictive trade and immigration policies, the pandemic exposed the risks of relying on overseas production (Figure 4). Offshore manufacturing has been favored for decades by corporate decision-makers due to its lower costs. However, the pandemic made it clear that these calculations often fail to account for the loss of resiliency in supply chains. The supply chain bottlenecks that initially drove prices higher in 2020 have eased, but a number of factors continue to complicate the global flow of goods, including the ongoing war in Ukraine and climate-related disruptions. With the risks of leaving production offshore likely to remain elevated in the foreseeable future, the push for reshoring and nearshoring of production (primarily centered on Mexico) has risen to the forefront. Positioning Mississippi to benefit from this reshoring trend, which extends beyond production to include research and design, should be part of the statewide strategy.

**GEOPOLITICAL DISRUPTIONS.** The Russian invasion of Ukraine in February 2022 caused widespread disruptions in commodities markets. Visible spikes in the price of natural gas, crude oil supplies, and other essential commodities, ranging from wheat to fertilizers, fueled inflation in the US and around the world. In addition to raising the price of critical energy and food supplies, the war has increased broader geopolitical conflict, including trade restrictions, adding further pressure to already high levels of inflation. Beyond the economic challenges associated with Russian aggression, it is a warning that the rise of authoritarian and antidemocratic regimes in other countries (such as

China, vis-à-vis Taiwan) pose additional threats that could spill over into the global economy. The current geopolitical uncertainty has also ratcheted up the US’s already-heightened interest in strengthening national security and defense capabilities. In light of the state’s many aerospace and defense assets, Mississippi is well-positioned to contribute to these national priorities. To fully participate in this sector’s growth, the statewide strategy will need to include investments in areas such as cybersecurity and in creating the required pipeline of highly skilled workers.

**FIGURE 4. GLOBAL SUPPLY CHAIN PRESSURE INDEX**  
STANDARD DEVIATION WHERE “NORMAL” EQUALS ZERO (0)



Source(s): US Federal Reserve Bank of New York; TIP Strategies, Inc.  
Note(s): Index scaled by the current standard deviation from the long-term average.

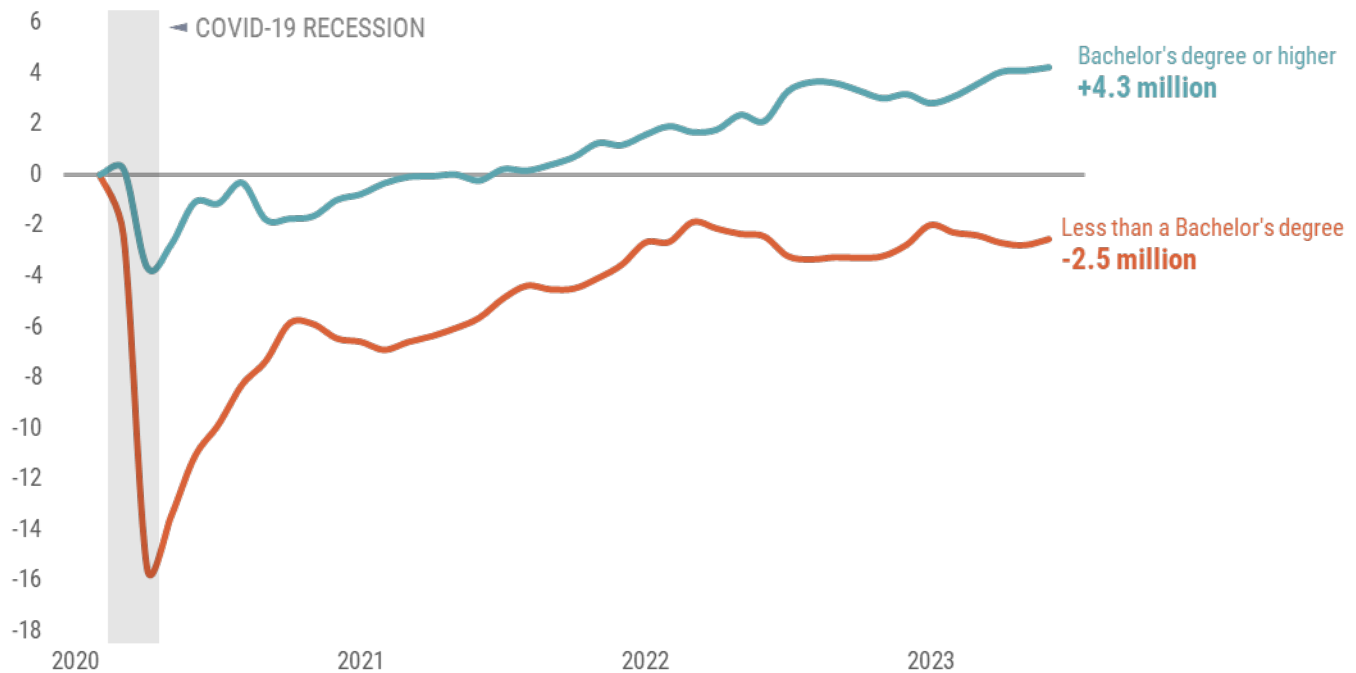
**FEDERAL FUNDING.** The influx of federal funds often has a major role in stabilizing the economy during economic downturns and periods of transition. The nation’s post-pandemic response is no exception. The American Rescue Plan Act (ARPA), passed in March 2021, authorized \$1.9 trillion to help the US economy recover from the impacts of the COVID-19 pandemic through aid to households, small businesses, and nonprofits, and targeted relief for hard-hit industries, such as tourism and hospitality. Of the \$1.9 trillion, \$195 billion was slated for states, with Mississippi receiving an allocation of more than \$1.8 billion.<sup>1</sup> Just eight months later, in November 2021, the \$550 billion Infrastructure Investment and Jobs Act (IIJA) was signed into law. The legislation allocates federal funding to support bridge and road construction; strengthen ports of entry, such as ports and airports; increase access to broadband; create a more resilient energy grid; and carry out other major infrastructure projects. As of June 2023, \$2.5 billion in funds for 266 projects have been announced for Mississippi.<sup>2</sup> The Creating Helpful Incentives to Produce Semiconductors and Science Act (CHIPS Act), passed in July 2022, directs \$280 billion into investments that advance innovation in technologies including artificial intelligence (AI), robotics, and quantum computing, with \$53 billion earmarked to ramp up domestic semiconductor manufacturing. Additional federal investments include the Inflation Reduction Act (IRA), the Economic Development Administration (EDA) Tech Hubs Program, and the National Science Foundation (NSF) Engines. Taken together, this enormous infusion of federal funds provides a unique opportunity for state leaders to invest in strategic initiatives that can help advance Mississippi’s innovation goals.

<sup>1</sup> US Department of the Treasury. “[Coronavirus State and Local Fiscal Recovery Funds](#),” with link to [Allocation for States](#).  
<sup>2</sup> White House. “[President Biden’s Bipartisan Infrastructure Law Is Delivering in Mississippi as of June 2023](#).”

**TALENT.** Even prior to the COVID-19 pandemic, the US labor supply faced long-term pressures due to the aging of the Baby Boom generation, shifting immigration policies, decreasing fertility rates, and declining labor force participation rates. The economic upheaval associated with the pandemic dramatically accelerated these pressures. Even though the number of jobs in the US economy has rebounded, the same cannot be said for the labor force participation rate (LFPR), a prime indicator of available workers to fill job openings. In February 2020, the US LFPR was 63.3 percent. After dropping to 60.1 percent in April 2020—the lowest rate in 50 years—the June 2023 LFPR remained stubbornly below pre-pandemic levels at 62.6 percent.<sup>3</sup> The recovery has also been uneven.

While workers across nearly all industries and experience levels initially faced job losses due to the pandemic lockdown in the spring of 2020, employment outcomes diverged sharply when divided by educational attainment levels. Employment levels for those with a bachelor’s degree or higher had fully recovered by mid-2021. Those with lower levels of educational attainment continue to lag in their recovery (Figure 5). At the same time, employers report difficulty finding the workers they need. And those who are available often bring different expectations about flexible work arrangements, another long-term trend that was accelerated tremendously by the pandemic. After barely moving for more than a decade, the number of people primarily working from home tripled between 2019 and 2021, rising from 5.7 percent to 17.9 percent.<sup>4</sup> Building an innovation economy will require a collaborative effort encompassing workforce development, postsecondary institutions, economic developers, and industry to address these and other talent-related challenges.

**FIGURE 5. CUMULATIVE CHANGE IN EMPLOYMENT**  
MILLIONS OF JOBS FROM FEBRUARY 2020



Source(s): US Bureau of Labor Statistics, Household Survey (Current Population Survey); National Bureau of Economic Research (NBER); TIP Strategies, Inc.

Note(s): Employment is seasonally adjusted and includes all workers age 25 and older. The current recession began in February 2020 and ended (officially) in April 2020.

<sup>3</sup>US Bureau of Labor Statistics. “[Civilian Labor Force Participation Rate.](#)”

<sup>4</sup> US Census Bureau. “[U.S. Census Bureau Releases New 2021 American Community Survey 1-Year Estimates for All Geographic Areas with Populations of 65,000 or More.](#)” September 15, 2022. US Bureau of Labor Statistics. “[Unemployment Rises in 2020, as the Country Battles the COVID-19 Pandemic.](#)” Data from the Current Population Survey show that 35.4 percent of the population worked from home in May 2020, during the earliest stages of the pandemic.

# COMPETITIVE POSITION

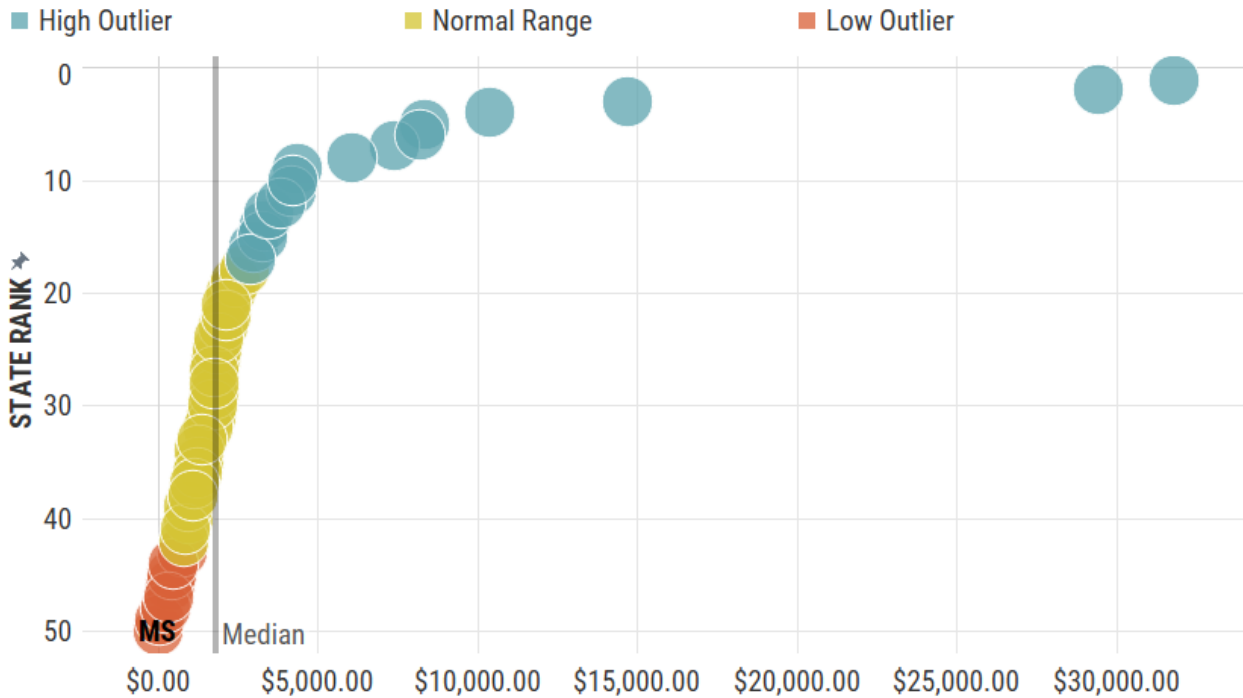
As part of the strategic planning process, TIP conducted an analysis of Mississippi’s competitive position. Initial data collection began in February 2023 and the work extended for the next four months. An in-depth analysis was delivered in April 2023 as an interactive data visualization. The *Global Competitiveness* analysis explored data in four areas: state benchmarking, innovation, higher education activity, and regional connectivity.

The assessment of Mississippi’s global competitiveness was supplemented by an analysis of the state’s talent resources. The *Human Capital Analysis* was also delivered as a separate data visualization in May 2023. The analysis provided an overview of the state’s employment landscape, took a deep dive into the pipeline (supply) of talent being provided by the state’s higher education institutions, and assessed the demand for talent in six emerging technology clusters that are among the state’s strengths: advanced materials, agriculture, biosciences, blue economy, engineering and science, and security. Key findings from these interactive analyses, summarized below, informed and guided the direction of the strategic innovation plan.

## Mississippi is lagging; the state falls at or near bottom in most innovation metrics.

Even considering metrics that compare Mississippi to the rest of the country on a relative scale, the state is significantly behind its peers in tech transfer outcomes. For example, it ranks 50th in venture capital funding per \$1 million in gross domestic product (GDP) and only marginally higher in number of startups initiated per \$1 million of academic R&D performed. These data present an opportunity for Mississippi: with a long-term lens, major improvement in the state’s national status is possible.

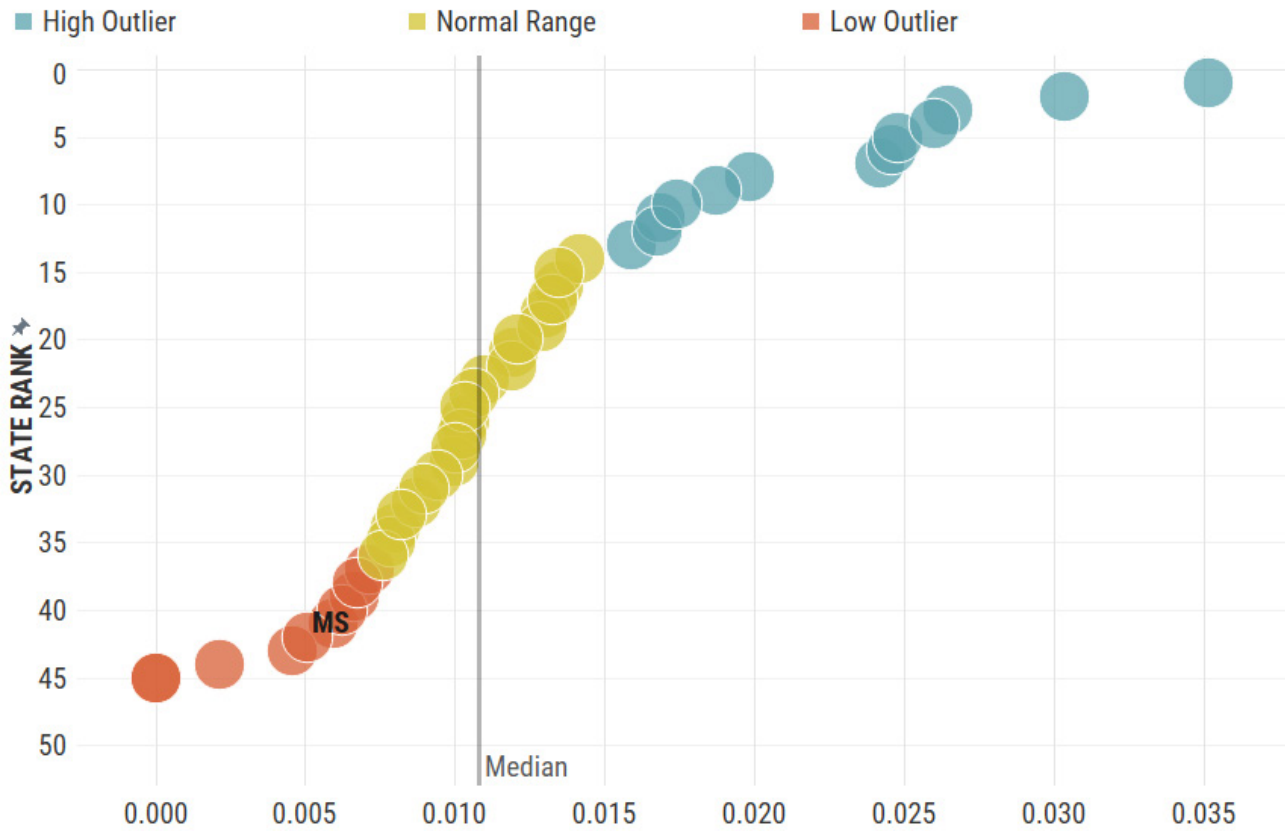
FIGURE 6. STATE COMPARISONS OF THE VENTURE CAPITAL FUNDING PER \$1M GDP, 2021



Source(s): National Science Foundation; National Science Board, Science and Engineering Indicators; and TIP Strategies, Inc.  
 Note(s): States in a normal range fall one median absolute deviation from the median of all states. States outside this range are categorized as high outlier or low outlier. Some states do not have values for some variables and are not included in the ranking.



FIGURE 7. STATE COMPARISONS OF THE NUMBER OF STARTUPS INITIATED PER \$1M ACADEMIC R&D PERFORMED, 2020

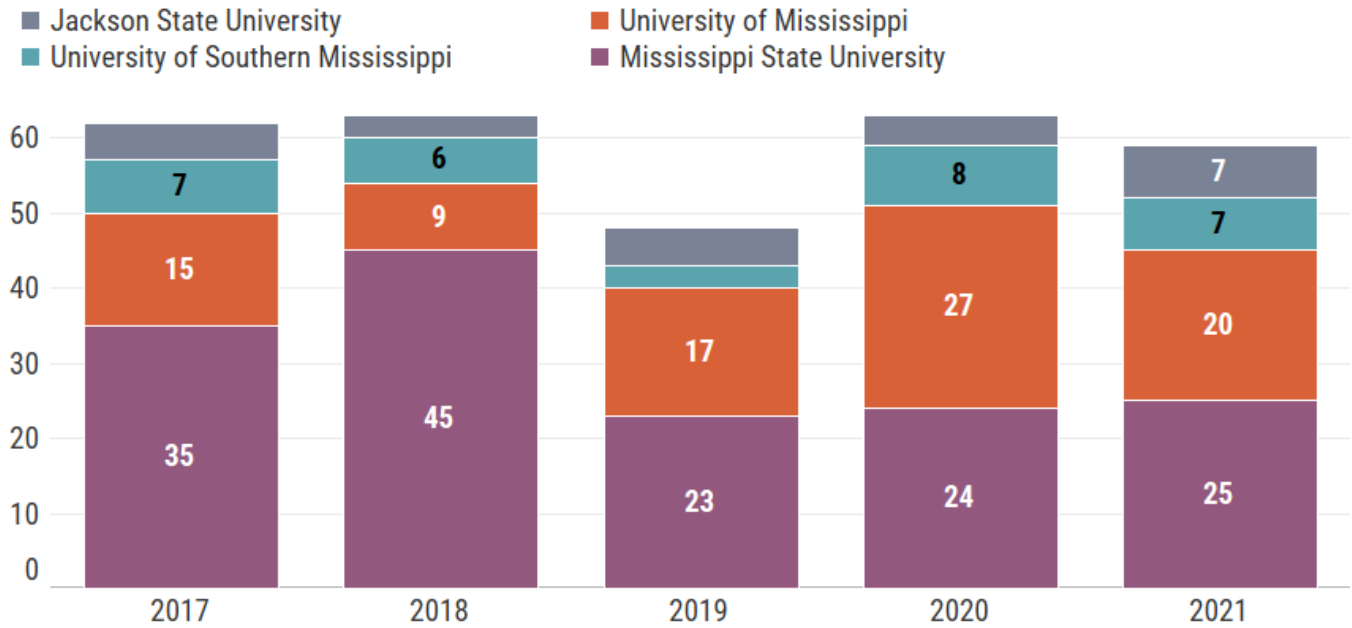


Source(s): Association of University Technology Managers (AUTM) Statistics Access for Technology Transfer Database; National Science Foundation; National Science Board, Science and Engineering Indicators; and TIP Strategies, Inc.  
 Note(s): States in a normal range fall one median absolute deviation from the median of all states. States outside this range are categorized as high outlier or low outlier. Some states do not have values for some variables and are not included in the ranking.

***The balance of technology transfer metrics shifts by category.***

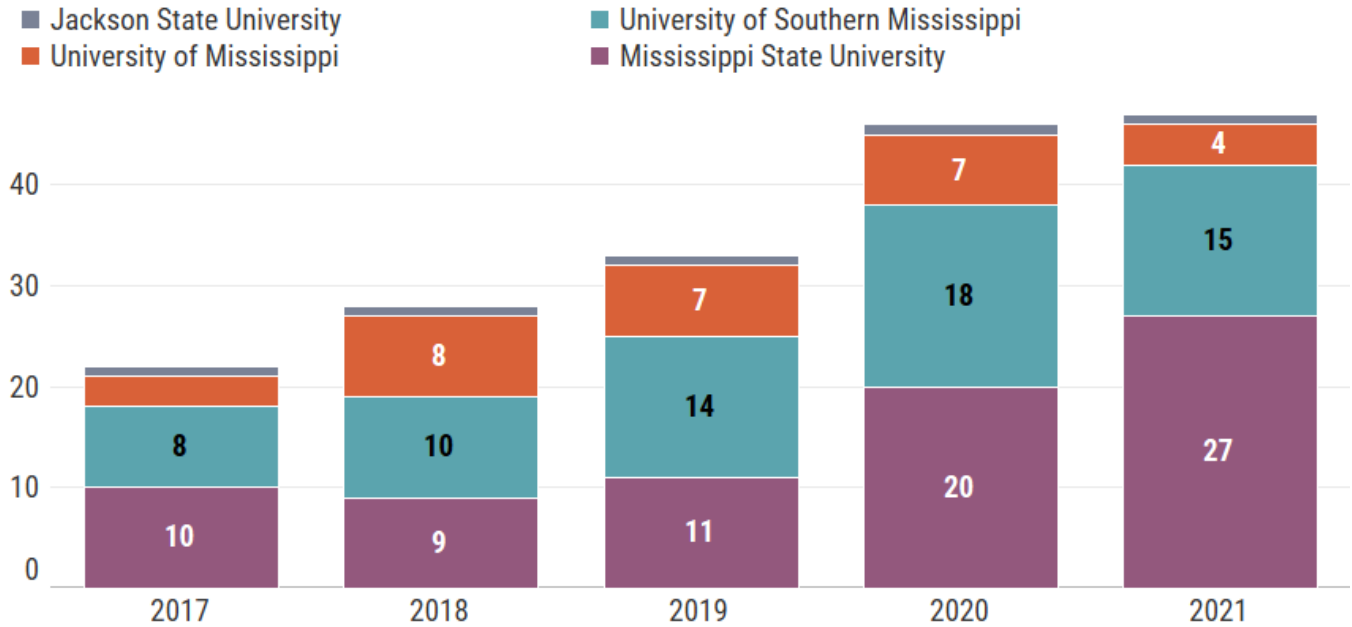
Comparing the four MRC research universities, there are variations in the data regarding institutional leaders. In terms of the number of total invention disclosures received, the University of Mississippi and Mississippi State University have led the way in the recent past. In number of new patent filings, the University of Southern Mississippi is home to much stronger representation. The conclusion from the sum of these metrics is that MSU is leading the way in the state, but there are discrepancies depending on the specific category. However, Jackson State University consistently ranks at the bottom of these tech transfer metrics and therefore has much room for improvement.

FIGURE 8. UNIVERSITY TECHNOLOGY TRANSFER ACTIVITY: TOTAL DISCLOSURES RECEIVED



Source(s): AUTM Statistics Access for Technology Transfer (STATT) Database; TIP Strategies, Inc.  
 Note(s): Data from AUTM are supplemented by information collected from the four listed universities by TIP Strategies, Inc.

FIGURE 9. UNIVERSITY TECHNOLOGY TRANSFER ACTIVITY: NUMBER OF NEWLY FILED PATENT APPLICATIONS

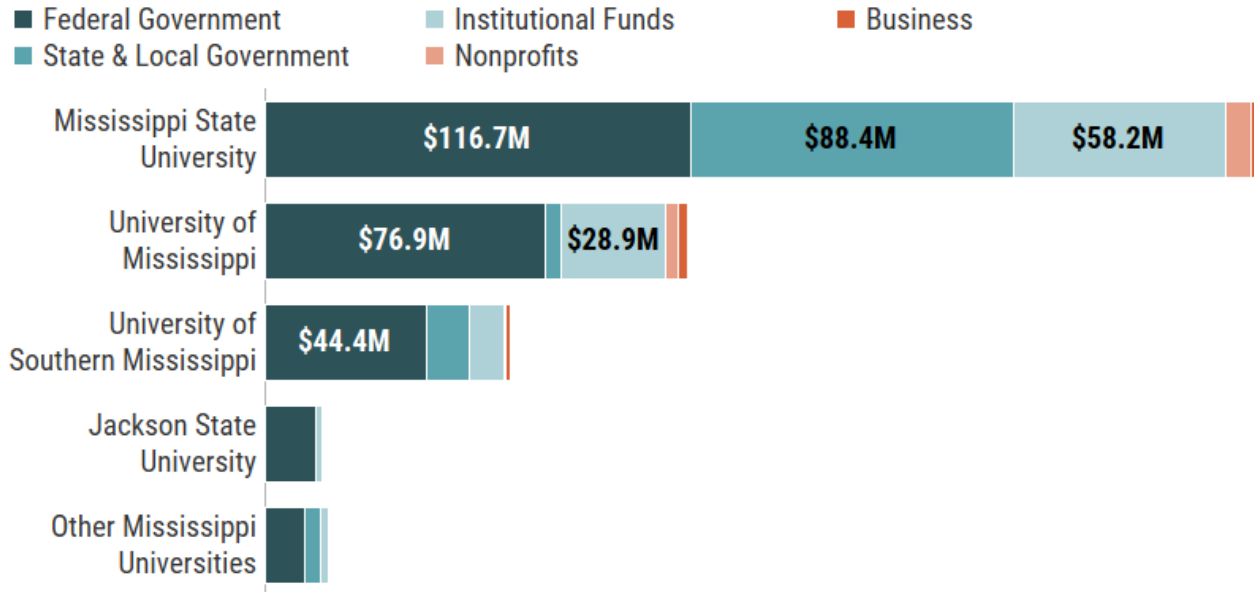


Source(s): AUTM STATT Database; TIP Strategies, Inc.  
 Note(s): Data from AUTM are supplemented by information collected from the four listed universities by TIP Strategies, Inc.

**Research expenditures need source diversification.**

In 2021, the R&D of all four MRC universities was funded overwhelmingly by the federal government. Even at Mississippi State University, which spent over \$260 million on R&D, federal sources constituted nearly one-half of that. At the other three institutions, the reliance on federal funding was even starker. For Mississippi’s innovation economy to prosper, its universities should place more attention on other diversified funding sources, such as state and local government, existing endowments, and private industry.

**FIGURE 10. UNIVERSITY RESEARCH AND DEVELOPMENT IN MISSISSIPPI: FUNDING SOURCES**



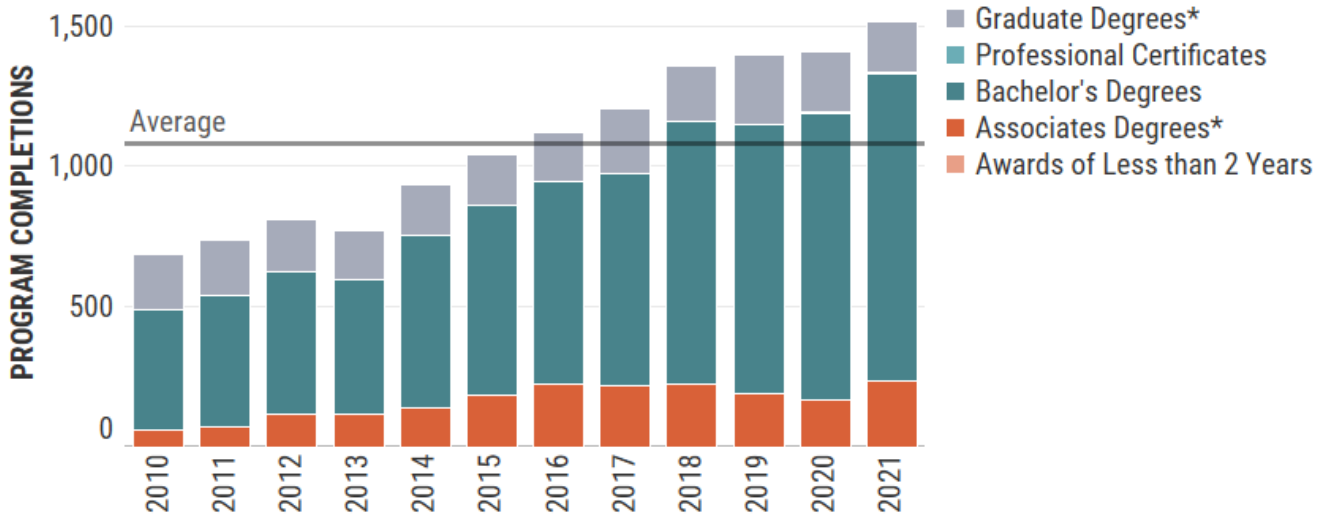
Source(s): National Science Foundation (NSF), National Center for Science and Engineering Statistics (NCSES), Higher Education Research and Development (HERD) Survey 2021; TIP Strategies, Inc.

Note(s): Combines data on higher education institutions from the HERD long form (institutions with at least \$150,000 in R&D expenditures) and short form (institutions with less than \$1M in R&D expenditures) surveys for the 2021 fiscal year.

**The state’s talent pipeline is improving.**

Overall program completions out of Mississippi postsecondary institutions are up roughly 30 percent in the past decade. Even more promising, engineering degrees specifically have been steadily rising over the same timeframe. These metrics demonstrate incremental improvement in the state’s educated and skilled labor force. With rising demand in key industries, this is a hopeful scenario.

FIGURE 11. MISSISSIPPI ENGINEERING GENERAL PROGRAM COMPLETION TRENDS AT INSTITUTIONS, 2010–2021



\*Associate’s degrees include certificates earned in more than one year and less than four years. Graduate degrees include master’s and doctoral degrees. Only includes general programs with at least 25 average annual completions between 2010 and 2021.  
 Source(s): National Center for Education Statistics (NCES), Integrated Postsecondary Education Data System (IPEDS); Lightcast 2023.1–Quarterly Census of Employment and Wages (QCEW) Employees, Non-QCEW Employees, and Self-Employed; TIP Strategies, Inc.

FIGURE 12. LABOR DEMAND FOR BLUE ECONOMY STEM OCCUPATIONS

	Share of Job Postings	Employed Residents	Separations Rate	Potential Available Talent
Industrial Engineers	4.2%	2,159	25.8%	558
Computer, All Other	3.7%	1,803	30.8%	555
Mechanical Engineers	2.4%	1,416	28.0%	396
Natural Sciences Managers	2.2%	245	32.4%	79
Civil Engineers	2.1%	2,272	35.0%	796
Electrical Engineers	1.9%	1,221	24.3%	297
Architectural & Engineering Managers	1.5%	930	28.3%	263
Information Security Analysts	1.3%	695	39.0%	271
Computer Systems Analysts	1.1%	2,395	35.3%	844
Network & Computer Systems Administrators	1.1%	1,581	34.6%	547
Industrial Engineering Technicians	1.0%	371	40.6%	151
Engineering Techs., Except Drafters, All Other	0.9%	616	66.3%	409
Software Developers	0.9%	3,062	34.2%	1,047
Statisticians	0.8%	70	27.0%	19
Engineers, All Other	0.7%	818	31.0%	254

Source(s): US Bureau of Labor Statistics (BLS); 2023.1–QCEW Employees, Non-QCEW Employees, and Self-Employed; TIP Strategies, Inc.  
 Note(s): If the number of workers who left their job is greater than the total number of jobs in an occupation (i.e., a churn rate of at least 100 percent) then the number of employed residents is used as potential available talent. The blue economy target is defined by a group of 31 detailed industries, accessing their regional job postings for the 12-month period from April 2022 through April 2023, and identifying the top 15 occupations in their collective hiring pipelines.

# ACTION PLAN

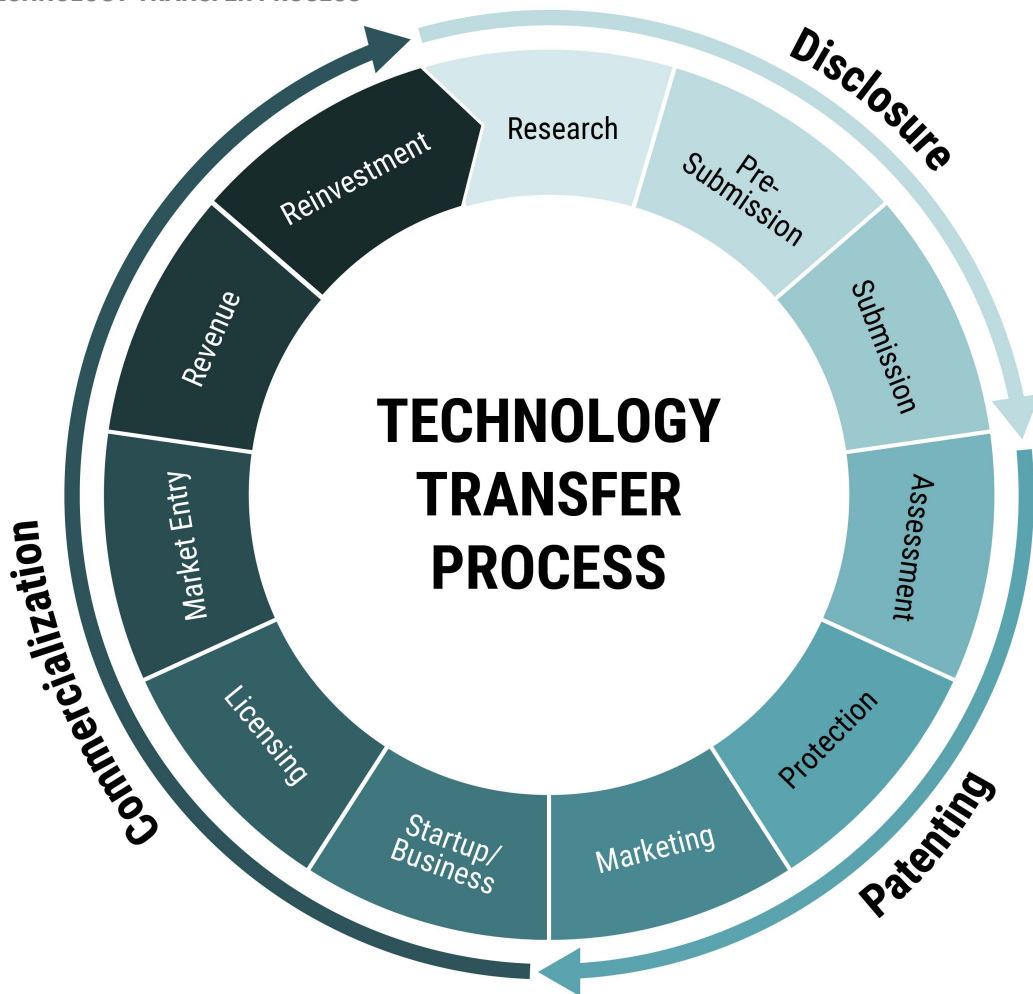
After incorporating the quantitative and qualitative data provided during the discovery process, TIP developed the following action plan in coordination with the MRC and the MDA. It is built on three goals and is underpinned by the organizational section that follows.

## Goal 1. Optimize Technology Transfer Systems and Processes *Improve the systems and processes driving R&D and commercialization.*

The pathway from academic invention to patenting, licensing, or startup formation can prove complicated and arduous. It requires a concerted effort from universities to facilitate these transitions. This process is rarely linear. These recommendations seek to minimize the friction between university-produced ideas and market entry.

No two universities are the same, but the four public research institutions in Mississippi have already demonstrated a commitment for collaboration. The ongoing relationships among the TTOs at each school are critical to the implementation of these strategies.

FIGURE 13. TECHNOLOGY TRANSFER PROCESS



Source(s): Graphic adapted from MIT's Technology Licensing Office by TIP Strategies, Inc.

## Strategies and Actions

- 1.1. Create collaborative tech transfer protocols for the four MRC universities.
  - 1.1.1. Develop a shared vision for the future of the four MRC TTOs and communicate the result to all relevant university leadership and support staff.
  - 1.1.2. Conduct a comprehensive cross-institutional evaluation of the current process of commercialization at each university to identify discrepancies and evaluate best practices.
  - 1.1.3. Establish mechanisms for the ongoing sharing of TTO resources and expertise across the MRC to minimize silos.
- 1.2. Better educate faculty and students on the process and methods necessary for successful commercialization.
  - 1.2.1. Hold regular open workshops, forums, and training sessions, hosted by the TTOs and including guest experts from private industry, intended to provide insights on pathways to commercialization.
  - 1.2.2. Create mentorship opportunities by matching faculty and students with professionals in the alumni network who have prior experience with the tech transfer process.
    - Coordinate efforts between each university's alumni outreach and career counseling departments.
  - 1.2.3. Promote success stories in the form of case studies to inform faculty and students about the universities' big wins.
    - Include these stories in existing alumni print magazines and feature them prominently online, such as the websites of specific departments connected to R&D success.
  - 1.2.4. Increase support and funding for the MSU E-Center as a catalyst for student entrepreneurship.
    - Work with the E-Center and the other three MRC universities to create a pilot project for exporting the successful E-Center model to Jackson, Oxford, and Hattiesburg.
    - Create and scale up student entrepreneurship programs at each of the MRC universities, based on the initial pilot and begin a second round of pilot projects for other four-year higher education institutions (such as Alcorn State University) and community colleges across the state.
    - Host joint pitch and other entrepreneurship-related events in connection to the new centers, to be attended by students and faculty from all four MRC universities.
  - 1.2.5. Elevate innovation and entrepreneurship as a desirable path for MRC faculty.
    - Add to existing tenure metrics: commercialization, revenue, and company formation.
    - Encourage faculty and postdoctoral students to publish in industry outlets, such as the *Harvard Business Review*, in addition to academic journals.
- 1.3. Increase targeted funding for academic R&D, tech transfer, and new endowments to attract nationally recognized faculty and their graduate students.
  - 1.3.1. Identify gaps in capacity and responsibilities at each of the four MRC universities' TTOs, e.g., legal counsel and financial due diligence services.
  - 1.3.2. Create a new funding mechanism for endowed chairs that enables the universities to better recruit top-tier faculty and their research teams. This approach will strengthen departments involved with tech transfer. Both the University of California system's matching fund and the Texas Governor's University Research Initiative are important benchmarks.



- 1.3.3. Establish, as part of the faculty recruitment process, dedicated centers of excellence (COEs), clustered around each university’s unique assets (e.g., polymers/advanced materials at USM, agricultural science at MSU).
    - Leverage the COEs to facilitate institutional pursuit of federal funding opportunities.
  - 1.3.4. Leverage university and partner connections to high wealth individuals to help build innovation in the state through endowed chairs, COEs, and scholarships.
    - Work through alumni networks at MRC universities and other channels to cultivate relationships with high-net-worth individuals who have ties to Mississippi (e.g., family connections, graduates of universities in the state, or previous service in military installations in the state).
    - Use these relationships to direct private funding into building the innovation capacity at MRC universities (see the University of Texas at Arlington’s [recent \\$12 million gift](#) from an oil and gas industry billionaire to establish cutting-edge research and education in energy and engineering).
  - 1.3.5. Create new funding models to bridge the gap for entrepreneurial PIs and other academic researchers (faculty, postdoctoral fellows, and graduate students) so that they can continue their primary job of conducting academic research while they begin startup formation and development.
    - Use the Federation for Advanced Manufacturing Education (FAME) model pioneered by Toyota for workforce development and technical training for faculty researchers to receive livable compensation while they learn and gain hands-on experience in modern manufacturing, in order to spur interest in commercialization while addressing academic researchers’ personal financial concerns.
    - Encourage more MRC faculty and ERDC scientists (ERDC offers a nine-month sabbatical but few have used it) to pursue sabbaticals and mini-sabbaticals for the purpose of starting a company, joining an existing startup, or engaging more actively in the innovation and entrepreneurial ecosystem in Mississippi.
- 1.4. Strengthen private sector engagement with the MRC and federal R&D facilities.
- 1.4.1. Lean on alumni networks to seek out individuals who have lasting personal connections to the region and would be invested in facilitating the universities’ relationship with private industry.
  - 1.4.2. Encourage TTO staff to attend relevant industry events in their area (and the state) to foster new relationships.
  - 1.4.3. Create commercialization advisory boards (or an informal equivalent) at each university that include local industry leaders, successful entrepreneurs, and TTO leadership to assist with implementation.
    - Use these advisory boards and other efforts to bring industry in earlier to inform research at MRC universities.
  - 1.4.4. Encourage a greater amount of “spin-in” activity at MRC universities that takes the form of industry-sponsored research and other forms of knowledge creation and R&D that is driven by the market.

### Spin-In Model

University tech transfer and commercialization efforts are structured to transfer university-generated knowledge and inventions into society and the private sector. The “spin-in” model invites businesses and individuals (such as entrepreneurs) to collaborate with faculty researchers and access university inventions, technologies, and facilities to create new products and services that align with the universities’ existing expertise and research strengths.

- 1.4.5.** Set a 10-year goal of ranking in the top 25 states for the two-year average of Small Business Innovation Research (SBIR) and Small Business Technology (STTR) funding per \$1 million of GDP (up from the most recent 2020 rank of 48th). Set specific supporting goals of increasing the total dollar amount of SBIR/STTR awards and the number of awards to companies in Mississippi over the next 10 years. Work with the MRC, MDA, Mississippi Defense Initiative, MSET, Innovate MS, and other partners to achieve this goal.
- Promote the recent \$10 million SBIR Phase III [contract awarded to Hyperion Technology Group](#) in Tupelo—the largest SBIR award in the state’s history—to generate excitement and awareness of the state’s defense innovation assets and opportunities.
  - Create a state matching fund for SBIR/STTR awards (similar to the state matching funds offered by Arkansas, Tennessee, Alabama, and other states), in order to make Mississippi a more competitive location for companies seeking SBIR/STTR funding.
- 1.4.6.** Create state matching funds for the pursuit of federal research grant program awards, such as the National Science Foundation (NSF) Established Program to Stimulate Competitive Research (EPSCoR) and the National Institutes of Health (NIH) Research Evaluation and Commercialization Hubs (REACH).
- 1.4.7.** Work with ERDCWERX, MCITY, and other partners to build an understanding of the outflow of the 95 percent of the \$1.2 billion annual ERDC R&D budget that ends up leaving Mississippi.
- Identify specific research areas and companies within ERDC’s R&D supply chain that could be recruited or relocated to Mississippi.
  - Identify existing Mississippi companies that could expand their capabilities to become suppliers or service providers to ERDC to fill some of the 95 percent gap.
  - Work with the MRC, Innovate MS, and other partners to identify and support Mississippi entrepreneurs that could launch new companies or expand startups to capitalize on ERDC’s research needs.
  - Work with the ERDC, the MDA, and EDOs across the state to pursue additional supply chain opportunities, including manufacturing, recycling/material testing, and professional services into additional communities across the state, in addition to the focused activity envisioned at MCITY in Vicksburg.

**1.5. Build stronger connections among TTOs, local EDOs, and the MDA.**

- 1.5.1.** Conduct joint university-EDO research projects, to include data sharing, target industry analysis, and potential funding applications.
- 1.5.2.** Participate in relevant EDO-led events and activities, such as conferences (e.g., industry expos) and business development efforts (e.g., site selector visits).
- 1.5.3.** Encourage more information sharing between EDOs and TTOs around business recruitment projects and business retention and expansion (BRE) activities (including business visitations and BRE surveys).
- 1.5.4.** Support and expand the Gulf Blue Navigator accelerator and its activities aimed at attracting blue economy startups to Coastal Mississippi.
- Provide MDA incentives to recruit and retain companies that participate in the accelerator.
  - Work with USM, community colleges in southern Mississippi (Mississippi Gulf Coast Community College and Pearl River Community College, in particular), and other MRC universities to better

connect students with companies that participate in the accelerator through internships, networking events, and other activities.

- Use the Gulf Blue Navigator as a model for similar MRC university and industry collaborations in Jackson with JSU, Starkville with MSU, and Oxford with Ole Miss. Each of the four MRC universities and their respective local EDOs should have a similar accelerator/innovation district effort.

1.6. Use TTOs as a vehicle for marketing R&D facilities (e.g., UM’s Insight Park, USM’s Polymer Institute, and ERDCWERX in Vicksburg).

1.6.1. Leverage online platforms, such as university social media and websites, to promote the resources, spaces, services, and success stories of each university’s R&D ecosystem.

1.6.2. Organize open houses, hosted by the TTOs, to showcase facilities to all interested parties.

1.6.3. Cultivate relationships with media outlets, including local news, radio, and online publications, to disseminate press releases and research highlights.

## Goal 2. Strengthen the Innovation Ecosystem

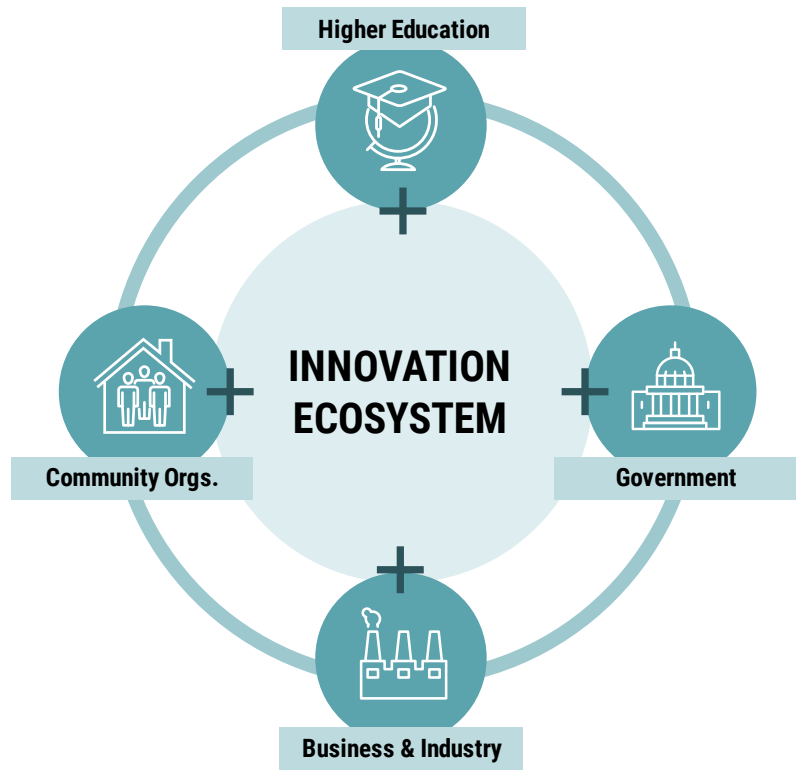
*Foster a stronger statewide environment to grow and attract research-intensive companies.*

The innovation ecosystem of a state involves the interaction of higher education, government, business and industry, and community organizations. The ecosystem is mutually supportive in fostering an investment-friendly environment. Innovation refers not only to new technology but also to new business models.

Strong network density (the colocation of innovation assets) remains concentrated in Boston and the San Francisco Bay Area, but has increasingly extended to other metros like Austin, Nashville, Atlanta, and even smaller markets like Chattanooga, Huntsville, Asheville, and Green Bay. Given its lack of network density relative to those locations, Mississippi will need to leverage its resources more aggressively in order to achieve its long-term goals.

There are organizations (such as Innovate MS) that are striving to develop this ecosystem in a more robust and sustainable way. Strengthening that ecosystem is a prime objective of this plan.

FIGURE 14. INNOVATION ECOSYSTEM



Source(s): TIP Strategies, Inc.

## Strategies and Actions

- 2.1. Create linkages between state economic development objectives and the availability of risk capital.
  - 2.1.1. Foster a more investment-friendly environment by identifying and collaborating with private deal flow.
  - 2.1.2. Aggressively expand the reach of the \$86 million State Small Business Credit Initiative (SSBCI) funding from the federal government as part of the American Rescue Plan Act allocated to Mississippi.
    - Support Innovate MS in its deployment of its new InvestMS Funds program for investment in new and existing risk capital sources (such as the Oxford-Delta Angel Fund), including marketing and administrative efforts.
    - Promote the InvestMS Direct Program request for proposal statewide to encourage eligible small businesses to apply for pre-seed, seed, and Series A funding.
    - Collaborate with venture capital investors to develop an ecosystem of one-to-one matches for the InvestMS Direct Program for Mississippi companies that have an investment commitment and term sheet from an accredited investor.
  - 2.1.3. Strengthen alumni networks to connect founders to angel investors (e.g., MSU Bulldogs) and anchor more deal activity in-state.
    - Conduct targeted outreach from university offices that explicitly solicits feedback from successful entrepreneurial alumni.
    - Organize networking events, both in-person and virtual, to connect local entrepreneurs with experienced and financially amenable alumni.
    - Encourage alumni to take on active advisory/mentorship roles with current faculty and students.
  - 2.1.4. Work with MDA, Innovate MS, MSET, the MRC, local EDOs, convention and visitors' bureaus, entrepreneurial support organizations, and other partners to create innovation events and festivals that draw entrepreneurs, investors, researchers, and other target audiences from across Mississippi and from outside the state.
    - Pilot and launch these events initially in the state's main innovation hubs including Jackson, Oxford, Starkville, Hattiesburg, and Gulfport/Biloxi.
    - Model the events as mini versions of SXSW in Austin, New Orleans Entrepreneur Week, and similar innovation and entrepreneurship festivals.
- 2.2. Support startups by linking them to proven service providers.
  - 2.2.1. Establish a centralized platform that functions as a statewide comprehensive directory to connect entrepreneurs with the local providers they need in order to become viable.
  - 2.2.2. Create a referral program, through which successful founders and companies can provide service recommendations to interested parties.
  - 2.2.3. Coordinate with university postgraduate institutions (e.g., law schools) to connect recent alumni with entrepreneurial projects in the state that need professional support (legal counsel, accounting, C-suite leadership, etc.).
- 2.3. Build regional innovation districts to stimulate startup activity.

- 2.3.1. Utilize the physical presence of the four MRC universities in Jackson, Oxford, Starkville, and Hattiesburg as the local innovation nodes of their regions.
- 2.3.2. Perform internal community audits of existing assets and use the results to develop master plans for the infrastructure, site selection, and amenities of each potential district.

### Innovation District Audits

A study by the Brookings Institution outlined five elements of such an audit to effectively assess a city or region's potential for innovation districts.

1. Critical mass: *Where are your region's highest concentrations of innovation assets?*
2. Innovation capacity: *Is the district leveraging and aligning its distinctive advantages to grow and strengthen firms' innovation capacity?*
3. Diversity and inclusion: *Does the district have an inclusive, diverse, and opportunity-rich environment?*
4. Quality of place: *Does the district have physical and social assets that attract a diversity of firms and people, increase interactions, and accelerate innovation outcomes?*
5. Leadership: *Does the district have the leadership necessary to succeed?*

Source(s): *Assessing Your Innovation District: A How-To Guide. The Anne T. and Robert M. Bass Initiative on Innovation and Placemaking.*  
<https://www.brookings.edu/wp-content/uploads/2018/02/audit-handbook.pdf>.

- 2.3.3. Leverage the universities' reputations and influence on local leadership to establish common visions for the particular focus of each district.
- 2.3.4. Examine best practices from other geographies that have created effective districts, such as the Near Southside Medical Innovation District in Fort Worth, Texas; the VCU Bio+Tech Park in Richmond, Virginia; and the rural innovation district in Cape Girardeau, Missouri.
- 2.3.5. Utilize the planned cyber operations center at Keesler Air Force Base in Biloxi as a catalyst space.
  - Create a mixed-use setting that markets as a Class A office developer to tech companies in other states.
  - Bring in regional and state higher education partners for training.
  - Generate entrepreneurial support for a coworking space. Host networking events there.
- 2.4. Increase the capacity and impact of existing organizations that have critical roles in fostering entrepreneurship in Mississippi.
  - 2.4.1. Advocate for the state legislature to allocate additional funding for Innovate MS with private sector match.
  - 2.4.2. Collaborate with Innovate MS and the MDA to identify and fund local partner organizations that have the potential to grow the entrepreneurial ecosystem in their communities, such as Higher Purpose Co. with operations in Clarksdale and Jackson.
  - 2.4.3. Use the ERDCWERX MCITY model in Vicksburg to pursue the creation of new innovation-focused partnership organizations elsewhere in the state.
  - 2.4.4. Increase funding for MSET, the state's sole statutorily mandated and contractually obligated innovation-focused partner. Additional capacity would allow MSET (currently housed at the Stennis Space Center) to leverage federal agencies and assets in the state, and recruit and retain high wage jobs in Mississippi.

- 2.5.** Grow corporate and civic engagement as it relates to the innovation ecosystem.
- 2.5.1.** Organize and facilitate corporate-sponsored challenges, in which university faculty and students can respond to technology-related issues faced by a company. National examples range from creative recycling and waste stream management to artificial intelligence related process improvements in human resource management and financial record systems.
  - 2.5.2.** Promote the competitions, both before and after they occur, with targeted marketing materials and online engagement that outline the purpose and successful outcomes of the events.
  - 2.5.3.** Work with the University of Mississippi Medical Center (UMMC) and major hospitals around the state to encourage healthcare and medical technology development and entrepreneurship.
    - Encourage collaboration among the state’s healthcare organizations and entrepreneurs to identify the most urgent challenges facing the healthcare industry in Mississippi and work to create solutions for these needs through the development of new technologies, products, or services and the creation of healthcare businesses.
    - Promote Mississippi and specific healthcare industry clusters in the state—especially Jackson and the medical district centered on the UMMC—as a favorable location for medical technology companies, healthcare information management firms, and other innovative healthcare firms.
    - Position the Jackson area’s healthcare sector and other healthcare hubs across the state as more accessible options than the crowded landscapes in larger metro areas where it may be more difficult for medical technology firms to access business-friendly hospital systems and related academic institutions as partners for clinical trials or proof-of-concept collaborations for medical products/technologies.
  - 2.5.4.** Engage cities and counties in searching for innovative solutions connected to public projects (e.g., infrastructure and transportation).
- 2.6.** Enhance Mississippi’s brand and image as a state defined by its creative talent, entrepreneurial companies, and innovation assets.
- 2.6.1.** Find and highlight success stories of high-growth firms and promote them, including MRC-affiliated startups and other companies that have achieved commercial success.
  - 2.6.2.** Revise MDA’s website and communications materials to highlight MSET, Innovate MS, the MRC, and other innovation and entrepreneurial support organizations.
  - 2.6.3.** Highlight and promote success stories of MRC university graduates who have achieved notable professional success in their careers.
    - Tell stories of individuals and companies to spread the word about specific nationally recognized academic programs within MRC universities.
    - Leverage the nationwide reach of USM’s Economic Development master’s degree program. This program includes an impressive array of hundreds of economic development leaders, site location advisors, chamber of commerce executives, commercial real estate executives, and other influential leaders in the fields of economic development and real estate.



## Goal 3. Improve Foundational Supports for Innovation

*Address structural needs (workforce, education, placemaking, and infrastructure) that underlie economic success.*

Without the necessary building blocks of labor and infrastructure, a broader innovation ecosystem will not be able to prosper. The state’s economy depends on its ability to grow the STEM talent pipeline through educational efforts and workforce development, provide reliable infrastructure, and enhance quality of place. Nowhere are the obstacles of these efforts more starkly apparent than in Jackson, not just in the context of Mississippi, but of the nation. In order to foster an innovation economy, state leadership will need to pay greater attention to the plight of its capital city, as well as the challenges present elsewhere in the state. By remedying these more foundational issues, Mississippi will establish an environment conducive to the flourishing of the tech transfer efforts of JSU and the other MRC universities and the state’s economy as a whole.

### Strategies and Actions

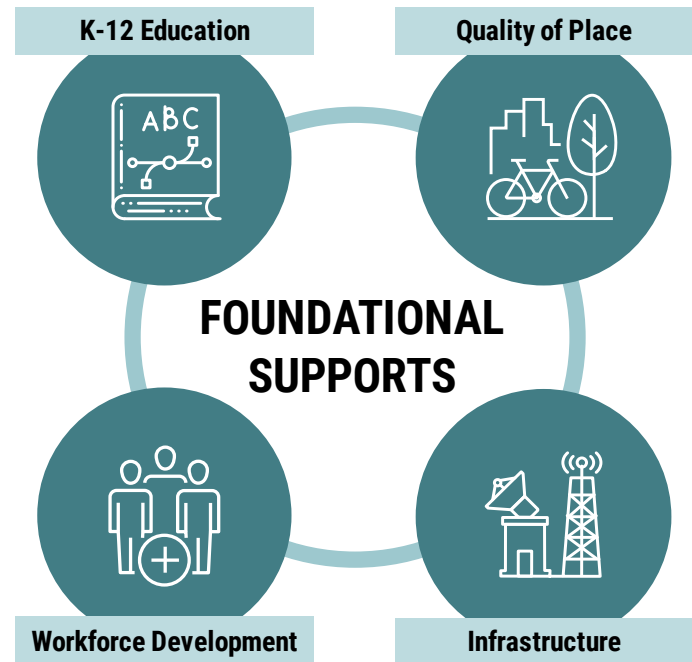
#### 3.1. Ensure reliable high-speed broadband access statewide.

- 3.1.1. Pursue federal infrastructure funding to expand service availability, with particular attention on rural areas.
- 3.1.2. Prioritize a significant increase in the number of Mississippians who have access to gigabit-speed internet, which currently stands at less than 40 percent.
- 3.1.3. Form public-private partnerships between the state and internet service providers to develop joint initiatives with shared resources, expertise, and investment capabilities that can address connectivity gaps.
- 3.1.4. Streamline regulations and permitting processes related to broadband infrastructure deployment.

#### 3.2. Strengthen connections between K–12 schools and tech-centered education, partnering with Microsoft TechSpark, coding schools, and other partners.

- 3.2.1. Create internship and apprenticeship programs for high-achieving high school students to engage in professional development with local tech companies.
- 3.2.2. Offer computer science and coding education classes, informed by partner organizations.
  - Promote and support existing organizations like BaseCamp Coding Academy in Water Valley and Mississippi Coding Academy in Biloxi.
- 3.2.3. Encourage collaborative projects that motivate students to solve real-world tech challenges.

FIGURE 15. FOUNDATIONAL SUPPORTS



Source(s): TIP Strategies, Inc.

- 3.2.4. Promote and expand Microsoft TechSpark’s computer science education partnerships, particularly in the Jackson area.
- 3.3. Improve talent retention by better advising K–12 and college students on career opportunities in Mississippi, engaging with private sector partners.
  - 3.3.1. Ensure that career fairs are held frequently and include participating tech and STEM companies from across the state.
  - 3.3.2. Train career counselors to be better informed of professional opportunities within Mississippi.
  - 3.3.3. Create a scholarship fund that offers retroactive tuition reimbursement for students at the MRC universities who remain in-state for two years postgraduation.
  - 3.3.4. Collaborate with Microsoft’s Technology Education and Learning Support (TEALS) program to enhance computer science education in K–12 classes.
  - 3.3.5. Further integrate computer science education among K–12, community colleges, and universities.
- 3.4. Increase the capacity and impact of existing organizations that support mixed-use development, downtown revitalization, and placemaking in communities across the state.
  - 3.4.1. Increase funding for the Mississippi Main Street Association.
  - 3.4.2. Support the John C. Stennis Institute of Government & Community Development at MSU and more closely align its efforts with development of emerging innovation districts across the state. Support the continuation of the Stennis Aspire program to build leadership capacity among rural counties and small communities across the state.
  - 3.4.3. Support the development of Jackson as the state’s central innovation node, building on the efforts of JSU, Bean Path, and other partners to solve critical problems.
    - Include JSU leadership in all infrastructure and revitalization efforts, with an emphasis on innovative, research-based solutions.
    - Support Bean Path’s plans for site expansion by better connecting the company to the real estate development community, both in- and out-of-state.
    - Leverage both JSU and Bean Path for the creation of a marketing campaign designed to attract new and former residents and businesses to Jackson.
- 3.5. Collaborate across all levels of education and workforce development providers to identify skills gaps and enhance talent pipeline improvement, building on and supporting existing efforts.
  - 3.5.1. Maintain and expand support for Accelerate MS to build a strong talent base for Mississippi employers, focusing on STEM careers and jobs that require training above high school (certifications, two-year degrees, four-year degrees).
  - 3.5.2. Prioritize sustainable funding for community colleges and associate’s degree programs.
  - 3.5.3. Continue promoting the improvement of elementary-level math and reading performance, leveraging recent success.
  - 3.5.4. Provide additional financial literacy education in public high schools.
  - 3.5.5. Improve accessibility and affordability of early childhood education across the state.

- 3.6.** Create a new statewide talent attraction incentive program—modeled after the Welcome Home Mississippi certified retirement communities program—that targets remote technology workers and high-demand STEM workers for tough-to-fill skilled positions.
- 3.6.1.** Provide a matching worker relocation grant as part of the program that augments local talent attraction incentive programs such as the Natchez Shift South initiative, which provides up to \$6,000 to individuals who relocate to Natchez to work remotely and purchase a home in the community.
- 3.6.2.** Provide grants to communities (cities and counties) across the state seeking to become certified “remote-worker friendly” communities using a checklist of criteria including broadband infrastructure, networking/events, housing, shared workspaces (such as coworking office space), and other assets that attract and retain remote and hybrid workers.
- Treat this as a similar effort to industrial site development, such as Mississippi Power Project Ready Sites or Entergy Qualified Site Program.
  - Provide grants to communities seeking certification to invest in the local assets and organizations needed to meet the criteria.
  - Provide funding for statewide and regional/local marketing efforts to generate awareness and excitement about the program.

## ORGANIZATION AND IMPLEMENTATION

This plan lays out a road map for building an innovation economy in Mississippi. This section addresses the questions of “How does all this get done?” and “How will success be evaluated?”

The MRC’s role at the center of a new statewide innovation strategy is central to this discussion, as are state policy and investment priorities, including MDA’s incentives. Other components of a successful strategic plan are as follows.

- Metrics to track progress.
- Timeframes appropriate for meeting goals.
- Multiyear budgets to address long-term priorities.
- Management teams comprised of the right team members to ensure implementation.
- A statewide culture that includes an appetite for change.
- The resiliency to anticipate changing market conditions.

## ORGANIZATIONAL CHANGE

It will come as no surprise that Mississippi’s current strategy for innovation can be enhanced. As state legislatures and state economic development organizations increasingly focus on technology, Mississippi will become less competitive. This is not simply an outside perception—it is shared by universities, research centers, and many state officials. This shared perspective is critical to making the organizational recommendations in this plan.

As part of the planning process, the TIP consulting team identified organizations working to advance innovation across the state. TIP also looked at key elements of existing regional ecosystems. At the statewide level, there are well over two dozen organizations whose mission directly or indirectly involves innovation and economic development. Among those entities are the MRC, each of the four MRC universities individually, the Mississippi Institutions of Higher Learning (IHL) system, the MDA, MSET, Innovate MS, the Governor’s Office, the Mississippi Legislature, the Mississippi Department of Information Technology Services, the Mississippi Department of Marine Resources, Mississippi Department of Transportation, the MSU Extension Service, MEDC, Mississippi Main Street Association, ERDCWERX, Mississippi SBDC, Accelerate MS, Mississippi Economic Council (MEC), MMA, Mississippi Alliance of Nonprofits and Philanthropy, the Public Employees’ Retirement System of Mississippi, the Mississippi Secretary of State, and the Mississippi State Port Authority.

At the local and regional levels, numerous organizations influence at least some aspects of innovation and entrepreneurship. Understanding what role these organizations have is vital to mapping the ecosystem. Specifically, economic development organizations, chambers of commerce, business councils, industry associations, higher education institutions, workforce development organizations, incubators and accelerators, small business development groups, regional planning and development districts, philanthropic foundations, and other groups assume various roles.

High-performing statewide innovation efforts achieve success by organizing and aligning the efforts of these public and private sector partners with research institutions. A defining characteristic of successful statewide innovation and economic development programs is the breaking down of silos. Put a different way, the blurring of boundaries and the elimination of formal territories served by different organizations is a hallmark of a dynamic innovation ecosystem. The more collaboration, the more information sharing, the more cross-disciplinary and cross-geography relationships, the more positive momentum will occur.

Restructuring statewide organizations is never easy and should not be taken lightly. A formal recommendation for restructuring innovation activities in Mississippi includes an assessment of existing organizational capacity and resources within the state and benchmarking of models in other states. In addition to the qualitative and quantitative analysis conducted as part of the planning process, TIP identified potential organizational models. These models, which were identified based in part on feedback from stakeholders and from the consulting team’s national experience, include the following.

- **Georgia.** Georgia Research Alliance, Georgia Institute of Technology Enterprise Innovation Institute.
- **Wisconsin.** Wisconsin Alumni Research Foundation (WARF), TiletownTech.
- **North Carolina.** NCInnovation, NC Biotech, RTI International.
- **Ohio.** Ohio Third Frontier, JobsOhio, Ohio State University Office of Innovation and Economic Development.
- **Texas.** Texas Higher Education Coordinating Board (THECB); Texas Higher Education Foundation (THEF); Texas Academy of Medicine, Engineering, Science & Technology (TAMEST); Cancer Prevention and Research Institute of Texas (CPRIT).

These examples, and other statewide models for innovation-driven economic development, can serve as case studies for Mississippi. Funding, organizational structure and board participation, staffing, programs, financial incentives, research university collaboration, state and local EDO collaboration, and other relevant factors should be considered as Mississippi evaluates options for reorganization. This is a high-priority action item that the State should undertake during the first year of implementation of the *Mississippi Innovation Plan*.

Based on the assessment conducted as part of the planning process and an initial review of models from other states, three options should be considered for restructuring Mississippi’s efforts to grow an innovation economy.

First, the Office of the Governor should ensure the state-level coordination of innovation-related projects, programs, and initiatives. This new body, tentatively called the Mississippi Office of Innovation (MOI), could be organized in a similar fashion as the existing Office of Military Affairs, formed in 2021. The MOI would be housed under the umbrella of the MDA but would also have its own advisory board. Although the specific board membership might be subject to change at state leadership’s discretion, TIP recommends the following ten representatives: the four MRC universities, MEDC, MMA, Innovate MS, and the Offices of the Governor, the Lieutenant Governor, and the Speaker of the House. The leader of the MOI, a full-time director, would act as the deciding vote in the event of a decision-making tie.

The MOI would, above all, be designed to make Mississippi more competitive nationally. Functions would include the following.

- Deploying matching funds for research grants that meet a minimum dollar threshold and adhere to the MOI’s guidelines.
- Compiling and maintaining a portfolio of grant opportunities.
- Driving collaboration between the MRC, EDOs, and state officials.
- Connecting commercializable university research with private industry.
- Spearheading the facilitation of the state’s R&D priorities for high-tech target industries.

Although ambitious, this recommendation could (and should) be pursued in the first year of implementation.

Second, the MRC should formalize collaboration. Currently, the four R1 universities in Mississippi collaborate informally. Although representatives from each university meet regularly to discuss innovation efforts, there isn’t

a designated organization to facilitate joint ventures, such as applications for federal funding or to learn from one another's best practices. Mississippi already has legislation on the books (the Mississippi University Research Authority Act, § 37-147-15) that permits the formation of research corporations with the approval of the IHL. A 501(c)(3) corporation of this kind could receive direct investment from private industry and nonprofits, thereby securing increased funding for university research efforts. Establishing this organization, like the creation of the MOI, could be enacted in the first year of the plan's implementation, and the two structural changes would complement each other significantly.

Third, greater access to risk capital is a key component of the entrepreneurial ecosystem. While there are sources of early-stage funding in Mississippi, the state lags other regions in significant ways.

The MOI (referenced above) should take the following actions.

1. Compile a complete resource guide of all risk capital sources in the state (including private equity funds, capital pools, angel investors, and examples of national venture capital firms that might have already invested in Mississippi companies).
2. Explore options for encouraging the formation of new private risk capital. There are models for this approach. In Green Bay, the Packers football team seeded a fund that has a string of successful investments. Linked with an accelerator and a coworking hub (TiletownTech), the community has attracted support and coinvestment from elsewhere in the state (e.g., the BrightStar Wisconsin Foundation).

This approach to venture funding (private dollars directly linked to Mississippi startup and research spinouts) would focus primarily on building the innovation economy in one region of the state with linkages to innovation hubs across the entire state. Initial efforts would be directed at regions with the largest existing concentration of innovation assets—the greater Jackson area, Vicksburg, and Coastal Mississippi. This is a bold and potentially transformative option, but it requires substantial private sector commitments. This option is also the one least connected to the MRC and least tied to state policy or funding.

## STATE POLICY AND INVESTMENT PRIORITIES

Mississippi offers a range of incentives to prospective companies and existing employers to encourage job creation and additional investment in the state. The MDA, serving as the state's lead economic development agency, is the primary entity responsible for providing incentives in the form of grants, loans, tax exemptions, rebates, and abatements to assist companies with infrastructure assistance, workforce training, and other support. The majority of MDA's incentive awards have been deployed as part of the state's recruitment of large, job-intensive business expansion projects. Infrastructure investments and other assistance to compete for large-scale industrial projects are important, and Mississippi can continue offering these inducements. However, existing incentives that favor job creation and megasites will not be enough for Mississippi to compete for innovative companies and workers.

The Mississippi Flexible Tax Incentive (MFLEX), the Mississippi Research and Development Skills Tax Credit, and the Strengthening Mississippi Academic Research Through (SMART) Business Act program are all steps in the right direction. But these incentives do not go far enough. There are significant gaps in the state's incentive offerings for innovation and technology-based economic growth.

New or expanded incentives should be offered in the following categories.

- **Wages.** Additional incentives should be made available for companies that create high-wage jobs. While already a priority for the state, additional incentives will help attract more skilled workers and will place a greater emphasis on R&D-related industries.



- **Technology.** State incentives and MDA programs should place a higher value on technology-oriented business growth (recruitment and homegrown high-growth potential firms).
- **Placemaking.** Infrastructure and similar public investments are needed in downtowns and urban innovation districts to create places where entrepreneurial companies can thrive.
- **Research.** Additional incentives should be created or expanded to encourage greater research collaboration among Mississippi companies and MRC universities. Companies should be rewarded for investing in state research institutions. The MRC universities should be rewarded for partnering with Mississippi companies to address specific research opportunities that can be commercialized.
- **STEM talent.** Additional incentives should be created or expanded to develop, attract, and retain STEM talent.

## PERFORMANCE METRICS

All the recommendations within this plan, both those that can be implemented quickly and those that will take years of concerted effort, will be judged by state leadership based on how much they have advanced Mississippi's innovation economy.

Metrics must be consistent and timely, and they should be outcome focused. The most direct measures are those that track average wages and capital investment. While these need to remain in place, this plan also underscores the importance of R&D spending, new high-value business startups, and the volume of available risk capital.

- **Income.** As stated above, high-wage employment is a vital metric. One simple but effective way to monitor progress on this metric is to track the median income of both local communities and the state as a whole, compared to other regions and states on a per capita basis.
- **R&D Expenditures and Funding Sources.** The state should evaluate the dollars spent on R&D in each of the MRC universities, as well as the sources of those dollars. The former metric should increase, and the latter should further diversify beyond reliance on federal funds.
- **Disclosures and Patents.** The MRC members already track this output and should continue to do so with full transparency. The effectiveness of the four universities' present and future innovation efforts will be directly correlated with an increase in commercialization-ready intellectual property.
- **Capital Flow.** The venture capital and angel investment presence in Mississippi is currently insufficient for creating the kind of network density required to grow a strong innovation economy. Tracking deal flow, originating from both within and outside the state, will equip leadership to make the case for new initiatives and programs designed to increase that capital influx.
- **Startup Creation.** In order to build a robust innovation ecosystem, entrepreneurial support will be critical. The number of new startups, both those spun out by university faculty and students and those created by other Mississippi residents, is a significant metric for leadership to keep top of mind.
- **Brand Recognition.** Given Mississippi's comparatively lagging national reputation for innovation, the MDA should create, distribute, and analyze perception surveys on an annual basis, tracking improvements of the state's brand within venture capital firms and technology-driven industries.
- **STEM Program Participation and Degrees.** The data trend shown in Figure 11 (page 14) is one example of a metric that should continue to be monitored and extended beyond engineering to include all STEM-related departments. Program completions from the MRC universities are a valuable indication of the state's positive direction.

# BEST PRACTICES

Throughout the project, TIP compiled best practices for supporting innovation at the state and regional level. Many of these examples served as inspiration for elements of the action plan. The brief profiles here can provide a starting point for implementing similar efforts in Mississippi.

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## **LONG-TERM FUNDING.** *Texas has a unique, long-standing funding source for higher education built into its constitution.*



Created in 1876 to support the University of Texas (UT) and the Texas A&M (A&M) systems, the Permanent University Fund (PUF) deploys revenues generated from 2.1 million acres located primarily in West Texas. Income is produced through the leasing of mineral rights (mineral income) as well as animal grazing, wind farms, and other surface leases (surface income).

Mineral income and profits from any land sales are further invested. Any income from those investments, along with all surface income, is deposited in a separate fund, the Available University Fund (AUF), which is used to pay for capital improvements and other programs to enhance the standing of the UT and A&M systems. Eligible institutions are also able to use the AUF to secure bonds.

Following years of debate, an amendment to the Texas Constitution in 1984 created the Higher Education Fund (HEF) to support the needs of other public universities in the state. The HEF is funded through annual appropriations of general revenue. However, the distributions available to HEF institutions are dwarfed by those available to PUF/AUF schools, creating serious funding inequities across the state's higher education system. Bills introduced in a recent legislative session would set aside nearly \$4 billion, contingent on voter approval, to create the Texas University Fund in support of the state's emerging research universities. Currently four universities meet this designation: University of Houston, Texas Tech University, University of North Texas, and Texas State University.

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## **CATALYST FUNDING.** *Indiana's Regional Economic Acceleration and Development Initiative (READI) is just one of several competitive grant programs that have served as a catalyst for economic development in the state.*



Launched in May 2021, the READI program solicited proposals from regional consortiums with the goal of supporting projects and programs that would help attract and retain talent and spur investment in the state. It resulted in the award of \$500 million to 17 regions, with this funding expected to generate an additional \$8.5 billion in investment. The program was intended to build on the momentum created by similar efforts including the Indiana Regional Cities Initiative (launched in 2015) and the 21st Century Talent initiative (2017). Many of the projects put forth for the funding during READI were proposals from the regional cities effort that were not funded or that required additional phases of funding for completion.

A second round of funding, READI 2.0, was announced on May 4, 2023, which will award an additional \$500 million through a competitive process. Unlike READI 1.0, which was funded through the American Rescue Plan Act, the new program will be drawn from state funds. This change will allow for greater flexibility in the types of projects that can be submitted for funding, and the lack of federal procurement requirements will streamline the process. Specifics of the READI 2.0 program are still being worked out, however, the broad goals of advancing quality of place and investing in needed infrastructure projects are expected to remain a central focus.

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**LARGE-SCALE INVESTMENT.** *The Carmenton innovation district at Ohio State University (OSU) will connect private, public, and academic resources to tackle global issues.*



Ohio State University's Carmenton innovation district is a mixed-use development that will bring housing and entertainment together with multidisciplinary research and private sector innovators. Announced in 2019, the "live-work-innovate" project will be constructed over the course of 30 years and will cover more than 270 acres on OSU's west campus. The district's first private enterprise, cell and gene therapy manufacturer Andelyn Biosciences, announced the official opening of its 180,000-square-foot manufacturing headquarters in June 2023. Other projects slated for completion in 2023 include a cancer-focused outpatient center (featuring the area's first proton therapy treatment facility), an interdisciplinary research center (facilitating collaboration on issues ranging from innovative cancer treatment to food insecurity to climate change), and an energy-focused research center (a joint venture with French energy company, Engie). In addition, Carmenton is expected to feature 1,500 residential units, 100,000–200,000 square feet of retail, and a hotel.

At full buildout, the district is expected to create 12,000 jobs with \$1 billion in payroll. Total investment in the project is estimated at \$4 billion from private and public sources, including one of Columbus's largest ever incentive packages. The \$47 million deal, approved in December 2021, includes a 40 percent incentive payment on income tax withholding on the projected payroll over 25 years as well as the creation of a tax increment financing district. The one-of-a-kind agreement enables the university to extend the incentives to future Carmenton tenants. The agreed upon incentives do not include tax abatements. As individual parcels are developed, the once tax-exempt land will become subject to property tax with few exceptions.

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**ORGANIZATIONAL.** *The 88th Texas Legislature created two new entities charged with strengthening the state's position as a leader in space travel and technology.*



Texas has consistently ranked at or near the top of US states in PricewaterhouseCooper's (PwC) annual look at the aerospace manufacturing landscape. Its wealth of aerospace assets includes NASA's Lyndon B. Johnson Space Center, two Federal Aviation Administration-licensed spaceports (in Houston and Midland), and commercial launch facilities (SpaceX site in Boca Chica and McGregor, and Blue Origin's space tourism flights in Van Horn). In addition, nearly all of the world's leading aerospace manufacturers have a Texas presence. The state has also invested in creating a pipeline of workers, including the October 2022 announcement of the North Texas Job Corps Airframe and Powerplant Mechanics Advanced Training Program. The initiative is intended to address an industry-wide need for aviation maintenance technicians by compressing 24 months of training into 12 months and was cited in the PwC study as a potential model for other states.

The newly created organizations are part of a \$350 million effort to strengthen the future of the industry in the state. The Texas Space Commission will be responsible for promoting innovation in space exploration and commercial aerospace, preparing and updating an annual strategic plan, and administering the Space Exploration and Aeronautics Research Fund created as part of its enabling legislation. The commission will be directed by a nine-member board composed of individuals with experience in aerospace (commercial or military) and civil aviation as well those with space-related experience in economic development, research, or the nonprofit sector, with three members each appointed by the governor, lieutenant governor, and speaker of the house. The Texas Aerospace Research and Space Economy Consortium is responsible for identifying research opportunities that strengthen the state's aerospace leadership role and providing recommendations on Space Exploration and Aeronautics Research Fund awards. The consortium is composed of each higher education institution in the state and will be governed by an independent executive committee. Six of the committee members will be appointed by the governor, lieutenant governor, and speaker of the house, with the remaining three positions held by the top executive from the Texas A&M University System, the University of Texas System, and Rice University.

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**ASSETS AND ANCHORS.** *Green Bay, Wisconsin, partnered with its one-of-a-kind asset, the Green Bay Packers, to transform its innovation ecosystem.*



In less than a decade, Green Bay, Wisconsin, has gone from a community that lacked nearly all of the essential elements of an innovation ecosystem, including capital networks, innovation spaces, and peer learning opportunities, to a region with a robust entrepreneurial environment. Leveraging what is perhaps the region’s most unique asset, the Green Bay Packers football team, was a huge part of the city’s transformation in this area. As the nation’s only community-owned major sports franchise, the team has a connection to Green Bay that differs from other employers or industries. The Titledown District, an entertainment area adjacent to Lambeau Field athletic stadium, is an important amenity that attracts investment, jobs, and talent to the area.

As a result, the launch of TitledownTech in October 2017, a one-of-a-kind partnership between the Green Bay Packers and Microsoft, served as a catalyst for the region’s transformation. The multipronged initiative includes an accelerator, an innovation lab (as part of a partnership with Microsoft), and a venture capital fund. The \$25 million venture capital fund was launched in July 2019, with the Packers and Microsoft as anchor partners. The fund targets early-stage companies, with an emphasis on Wisconsin locations. Upon completing its first fund in mid-2022, which invested in 23 companies, TitledownTech began raising \$80 million to create a second fund.

**ADVOCACY.** *In an effort to maintain the state’s competitive position in the semiconductor industry, Texas created the National Semiconductor Centers Texas Task Force in October 2021.*



As the name suggests, the \$280 billion federal Creating Helpful Incentives to Produce Semiconductors and Science Act of 2022 (CHIPS Act) seeks to revitalize the US semiconductor industry. Out of this massive legislation, \$53 billion is aimed at improving the competitiveness of US semiconductor manufacturing, with \$11 billion of that amount set aside for R&D. This allocation includes the creation of the National Semiconductor Technology Center (NSTC), a public-private consortium charged with addressing challenges across the entire semiconductor ecosystem, from research institutions to device manufacturers to labor to state and local governments. According to the National Institute of Standards and Technology, the NSTC has three high-level goals: strengthening domestic semiconductor manufacturing, reducing time and costs associated with bringing new ideas to market, and building the pipeline of skilled workers the industry requires.

Yet, even before the passage of the CHIPS Act in August 2022, Texas was looking to retain its edge in the semiconductor industry. In October 2021, Governor Greg Abbott formed the National Semiconductor Centers Texas Task Force. The task force was charged with bringing together public and private partners, including higher education institutions, regional economic development organizations, and semiconductor manufacturers in the state, to prepare a formal proposal to the US Department of Commerce to locate the proposed NSTC in Texas. Since the passage of the CHIPS Act, Texas has been the recipient of notable investments by chip makers, including Samsung’s \$17 billion facility in Taylor and Texas Instruments’ multiple projects in North Texas. In addition to the efforts of the task force, the state passed its own Texas CHIPS Act in May 2023, which established the Texas Semiconductor Innovation Consortium and authorized the creation of the Texas Semiconductor Innovation Fund.

**PRIVATE SECTOR LEADERSHIP.** *Business leaders in North Carolina joined together to advocate for funding to help the state’s research universities realize the commercial potential of their big ideas.*



In 2018, a group of business leaders concerned about North Carolina’s future kicked off an effort that led to the creation of NCInnovation (NCI) and ultimately raised more than \$23 million to improve the state’s performance across a range of innovation measures. While the state is home

to the Research Triangle—a unique partnership of industry, academia, and government linked to the presence of three major research universities (Duke University, University of North Carolina at Chapel Hill, and North Carolina State University)—commercialization of university research remains a challenge. NCI is a private sector-led effort designed to close the gaps by promoting the state’s strategic vision for a robust innovation ecosystem; facilitating collaboration among industry, higher education, and government; and advocating for a sustainable source of public funding.

The idea has strong bipartisan support. Funding for NCI is part of budget proposals put forth by the governor and by both houses of the North Carolina General Assembly. The budget plans differ, however, in terms of the amount of funding and the payment structure. Proposals put forth by the governor and the North Carolina House would allocate \$50 million annually to the agency. The North Carolina Senate’s budget package includes a much more substantial sum to support NCI—\$1.43 billion, nearly 5 percent of the state’s \$30 billion yearly budget—which would be appropriated as a one-time endowment. Proponents point to similar levels of spending in other states, such as Ohio’s Third Frontier, a \$2.3 billion initiative that has been supporting technology growth in the state since 2002.

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**COLLABORATION.** *Three of Texas’s largest cities—Dallas, Austin, and San Antonio—have joined forces to bring one of three health-focused national research centers to the state.*



The federal Advanced Research Projects Agency for Health (ARPA-H) is a \$2.5 billion initiative to advance innovation in medical research and spur the development of treatments for diseases like cancer and diabetes. Established in early 2023, the agency is modeled after the Defense Advanced Research Projects Agency (DARPA), which has a similar mission related to national security. ARPA-H plans to fund research designed to accelerate medical breakthroughs, identify and expand scalable solutions, support preventative programs, and build resilient healthcare systems. In March 2023, ARPA-H announced plans to locate three hubs across the US, creating a hub-and-spoke system to carry out its mission. The first site would be located near the US capital and would work to build relationships with federal agencies and other stakeholders. Sites for hubs 2 and 3 will be determined through a three-phase solicitation process, which is scheduled to end with the award of the two hubs by September 15, 2023.

The Dallas-Austin-San Antonio proposal puts Dallas’s Pegasus Park forward as a site for one of the two high-profile hubs. While the solicitation process is on a fast track, ARPA-H’s site selection plans have been a topic of discussion for much longer because funding was appropriated even before the agency was created. In addition to touting the advantages of the 25-acre, 750,000-square-foot Pegasus Park campus (which include proximity to Dallas/Fort Worth International Airport, one of the world’s busiest), the three-city bid highlights connections to assets in the partner cities as well as state-level advantages. Taking proactive steps to pull resources together in a unified submission may give Texas the edge in landing this coveted asset.

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**WORKFORCE.** *As part of an effort to fill a growing number of electric vehicle (EV) and mobility positions, Michigan is piloting a public-private partnership to recruit and retain top technology students.*



Building on its rich automotive history and wealth of assets, Michigan has quickly become a leader in the EV and mobility space. However, meeting the talent needs of this rapidly growing sector, and other technology-focused industries, has proven a challenge for the Great Lakes State. According to the Michigan Economic Development Corporation, the state had more than 3,000 EV and mobility jobs available in 2023. In response, state leaders have brought together public and private partners to form a Talent Action Team to help train workers to fill these in-demand roles.

The EV campaign is part of a \$34 million effort to attract and retain top talent to support Michigan’s key sectors. The one-year pilot program will bring together employers, higher education institutions, and workforce agencies

from across the state to provide concierge-level service to help match business partners with the talent they need. Initiatives under the Talent Action Team effort will include the Michigander EV Scholars program, which will provide up to \$10,000 in scholarships to the top 350 students in technology fields at participating universities that accept employment with a participating employer and commit to remaining in the state for one year. Michigan has announced a similar effort to support the state's growing semiconductor industry. The semiconductor talent attraction team seeks to build on a string of investments including the planned \$375 million expansion of Hemlock Semiconductor's existing operations in the state.

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**PLANNING AND PROMOTION.** *Through its Run to R1 campaign, Texas State University has created a focused and high-visibility effort to reach the institution's goal of becoming one of the state's top-tier research universities.*



The Carnegie R1 classification is awarded to institutions that meet specific benchmarks regarding research, including the number of research-related doctoral degrees awarded and the total amount spent on research. The American Council on Education, which partners with the Carnegie Foundation to manage the classifications, lists 146 universities, out of roughly 6,000 federally recognized institutions, that have achieved this prestigious rank. Being awarded the R1 classification raises the profiles of these institutions nationally, and even globally, helping to draw students, faculty, researchers, and funding.

Located in the fast-growing Austin metropolitan area, Texas State University is one of several emerging research institutions in the state looking to achieve this designation. Texas State University's efforts to strengthen its research profile stretch back more than a decade, including a 2014 fundraising effort called Next Is Now, which nearly doubled the university's endowment from \$165 to \$300 million. The original behind-the-scenes campaign was launched publicly in 2021 with the goal of raising an additional \$78 million. More recently, the university's current president established the Presidential Commission on Run to R1. The commission, which was created in September 2022, is charged with conducting data analysis and benchmarking, identifying relevant metrics and targets, and refining current strategies with a goal of obtaining R1 status by 2027. The Run to R1 campaign has also featured a town hall followed by a 1K run/walk event.

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