INCREASING COMMERCIALIZATION

INNOVATION DISTRICTS

OPPORTUNITY:

Identify Alabama's innovation clusters and focus innovation development efforts on the regional scale to ensure the state is cohesively moving toward a more innovative economy.

1. TARGETED CLUSTERING – ACTION

RECOMMENDATION:

The Alabama Innovation Corporation should engage an industry-leading firm to perform a comprehensive study on Alabama's innovative traded sectors (industry clusters that produce goods/services consumed outside of Alabama). The findings of the study should be subject to annual assessments of Alabama's innovation economy by the corporation, and the study should be used to create policies that support Alabama's innovation clusters.

BACKGROUND AND RATIONALE:

To increase the links between targeted entrepreneurship support and the regional economy, the Alabama Innovation Corporation should adopt a focused regional ecosystem approach. Before the approach can be developed, the corporation must have a clear understanding of what Alabama's innovation clusters and regional strengths actually are. While there are many candidates (including automotive, aerospace, robotics and advanced manufacturing, life sciences and energy), the state has not performed a specific, comprehensive study on its innovative traded sectors.

A well-researched innovation strategy will allow the corporation to identify Alabama's unique assets and competitive advantages in the modern economy and coordinate state resources to support regional areas of growth. Doing so would also help maximize the return on efforts to confront other shortcomings in the state's innovation economy. Such a study would also typically benchmark how Alabama is doing relative to its competitors, evaluate state progress over time and provide recommendations for forward-looking programs and initiatives. Alabama has not conducted a statewide inventory of its innovation ecosystem.

MEASURES OF SUCCESS:

Completion of an industry cluster report by July 2022.

MILESTONES

2021-22

Identify third party that can perform the industry cluster report.

Work with third party to obtain a completed report by summer 2022.

2022-23

Use data sets from industry cluster report to focus recruitment and commercialization efforts on the identified industries.

LEGISLATION REQUIRED: **NO**
ADDITIONAL FUNDS REQUIRED: **YES**

2. BUILD REGIONAL ECOSYSTEMS – STRATEGY

RECOMMENDATION:

After the Alabama Innovation Corporation completes the targeted sector study, use the data to identify Alabama's key innovative communities and create Regional Innovation Hub designations that will fund and incentivize collaboration to build and advance innovation-focused ecosystems, ensuring opportunities for all innovation-based businesses throughout Alabama. The hubs would accomplish the following:

Connect entrepreneurial efforts to existing regional business base and emerging opportunities, tailoring each effort to leverage the region's comparative advantages.

Deliver services throughout the region in coordination with existing efforts, academic assets and other key stakeholders. Consideration should be given to co-locate the hub in or near the regional business school and/or community college, and to support any existing tech accelerators or tech incubators whose mission is similar to the goals of the Alabama Innovation Corporation.

Consider how best to address the need for physical infrastructure/place-making to catalyze an entrepreneurial culture within the region.

Ensure programming is culturally specific, accessible and impactful to rural and historically underserved populations.

BACKGROUND AND RATIONALE:

While many of Alabama's regions have established or are proposing to establish entrepreneurship centers/programs/accelerators, there is considerable variance in the scope, scale, coverage, focus and resources to carry out these tasks. In addition to often being under-resourced, the efforts are also often siloed, disconnected from larger statewide efforts and often treat entrepreneurship as a one-size-fits-all model – not understanding the unique needs of innovative traded-sector firms. Because of this disconnect, state and regional efforts to support entrepreneurship will fall short of the mark if Alabama wants to use entrepreneurship as a way to build a more innovation-driven economy.

Regional Innovation Hubs should be created through peer-reviewed competitions and judged by the corporation. The following key criteria and evidence should be submitted with hub applications to be considered for designation:

Develop a cohesive vision and a plan to support, strengthen and integrate the region's ecosystem components to facilitate the support of innovation-based entrepreneurs.

Coalesce, coordinate and convene existing partners to leverage existing assets and serve traded-sector entrepreneurial efforts within the region.

Align efforts with existing or emerging regional priorities to ensure continuity among stakeholders, including industry, workforce and education, finance and policymakers.

Report on various performance metrics, including diversity and equity outcomes.

It is important to note that, while innovation hubs are needed in every region of the state, it does not mean that every region will be awarded a designation. It will take collaboration at the regional level to be able to coordinate the existing efforts cohesively. The state funding is to serve as an incentive for dedicated and forward-thinking regions to coalesce around a larger vision for their economic future. Ideally, this application process would expose areas where competing entities in a region have opportunities to partner, as well as instances where the critical dependencies around broadband, talent or R&D can be strengthened.

MEASURES OF SUCCESS

Drafting of an application by the corporation.

Identification of Regional Innovation Hubs.

MILESTONES

2021-22

After completion of industry cluster report in 2022, identify potential regional communities for hub designations.

Develop application process and criteria to select hubs.

2022-23

Invite communities to apply to the corporation for selection as a hub.

Select hubs and provide initial investment dollars and support to encourage the hubs' development.

LEGISLATION REQUIRED: **NO**
ADDITIONAL FUNDS REQUIRED: **YES**

INVESTMENT IN R&D INNOVATION

OPPORTUNITY:

Clearly identify university strengths and weaknesses in order to foster the creation of innovative businesses. Increase commercialization activities from universities through the creation of the Alabama Innovation Corporation. The following recommendations align with portions of the recommendations provided in the Hoover Institution Report under "The Role of Alabama Universities in Fostering Innovation and Growth" on pages 21-26.

1. TARGETED NATIONAL CAMPAIGN – ACTION

RECOMMENDATION:

The Alabama Innovation Corporation should assemble stakeholders to draft a Research and Technology Strategic Roadmap (Roadmap) to identify university research areas worthy of economic development and institutional focus. This Roadmap should offer a comprehensive and cohesive framework to foster collaboration between higher education, economic development and private-sector industry along the continuum from research to commercialization.

BACKGROUND AND RATIONALE:

Knowledge, innovation and collaboration drive economic growth. Alabama's strongest asset for such growth is the collective expertise of its institutions of higher education. Therefore, state officials with working knowledge of the state's postsecondary system are uniquely suited to partner with existing industry and develop a strategic roadmap to grow the state's innovation economy.

While industry-led research and development in Alabama remains low, higher education research and development activity continues to increase. For example, in 2019 the University of Alabama at Birmingham (UAB) surpassed $600 million in research funding for the first time. In 2020, UAB received more than $325 million in research funding from the National Institutes of Health alone.

Specific areas of opportunity within Alabama's innovation economy would likely include life and health sciences, but further research and industry collaboration is needed to clearly identify points of focus for commercialization. The Roadmap will identify and focus collaboration around sectors that offer the most promise for growing Alabama's innovation economy.

MEASURES OF SUCCESS

Completion of the Roadmap, which should include any statutory process, areas of focus and steps to support collaborative research, development and commercialization efforts around those areas of focus.

MILESTONES

2021-22

Identify officials from state government, in the private sector and economic development professionals to form a working committee that would identify university strengths and weaknesses for commercialization.

Begin research and leverage resources to identify university areas of growth that would supplement or enhance Alabama's traded sectors.

2022-23

Complete Roadmap.

Based on the findings of the Roadmap, encourage university-industry collaborations to further commercialization efforts and create a sustainable talent pool.

LEGISLATION REQUIRED: **NO**
ADDITIONAL FUNDS REQUIRED: **YES**

2. SUPPORT EARLY-STAGE INNOVATION AT UNIVERSITIES – ACTION

RECOMMENDATION:

Coalesce industry and academic partners to create an accelerator program that will educate students and faculty about bringing academic research from an idea to a licensable product. The accelerator would be similar to the federal Innovation Corps program or Ohio's I-Corps@Ohio and should provide access to specialized knowledge and technical expertise regarding product development and sources of funding to support translational efforts and a multiyear grant. For example, every year the accelerator could select 10 faculty members to participate in the cohort, where they would be provided extensive educational mentoring on developing their product. Funding would be distributed as project milestones are met. Once a milestone is achieved, additional funds could be requested for the next stage of development, subject to an annual cap (e.g., $75,000/year).

BACKGROUND AND RATIONALE:

Bridging the gap between an idea and a product can be overwhelming and is not necessarily an intuitive process for academics. Universities and colleges spun off 11,000 startups between 1996 and 2015 – an average of 550 per year – according to the Association of University Technology Managers, whose members oversee what is known as technology transfer. That's 0.1 percent of the roughly 400,000 annual startups reported by the Bureau of Labor Statistics. One reason for this difference is the challenge in translating academic research into new products. These hurdles are an important focus for the industries and investment communities, which have historically favored later-stage assets with lower risk and clearer commercial value.

Most early-stage programs will fail during development, no matter how promising the science or perceived business case. These early-stage ideas rarely attract investment interest until they have reached significant milestones, and even then, funding is very competitive for this critical transition. As a result, Alabama must be deliberate in its actions by creating a support system to facilitate commercialization activities from its universities. A university-focused program would work with students and faculty to generate proof of concept using industry standards and connect industry with academia.

MEASURES OF SUCCESS:

Measurable increase of commercialization activities from participant universities.

MILESTONES

2021-22

Identify public and private partners to assemble a working group to develop accelerator program.

Identify best practices from other states and programs to develop a comparable acceleration program.

Develop branding campaign to promote the accelerator program.

Roll out first pilot program in a university for the accelerator program.

2022-23

Expand accelerator program to other universities.

LEGISLATION REQUIRED: **NO**

ADDITIONAL FUNDS REQUIRED: **YES.** *(Funds could be reallocated from the Education Trust Fund to achieve these purposes.)*

UNIVERSITY COMMERCIALIZATION AND DEPLOYMENT

OPPORTUNITY:

Clarify and enhance state policies that limit commercialization activities at universities. Partner with universities to recruit the very best scientists and professors in order to start a chain reaction of impact and results. The following recommendations align with portions of the recommendations provided in the Hoover Institution Report under "The Role of Alabama Universities in Fostering Innovation and Growth" on pages 23-26.

1. REMOVING BARRIERS AND SUPPORTING TECHNOLOGY TRANSFER OFFICES – ACTION

RECOMMENDATION:

Enact legislation to amend the Alabama Ethics Act to explicitly authorize university faculty to become stakeholders in startups commercializing their research findings and technologies, and adopt other founder-friendly policies for university spinoffs. In addition, provide increased support for university technology transfer offices (TTOs) through the creation of a statewide TTO coordinating office to manage faculty research intellectual property and commercialization for colleges and universities.

BACKGROUND AND RATIONALE:

Increased involvement in technology commercialization has resulted in a heightened awareness of, and opportunity for, conflicts of interest. Many Alabama universities have addressed these conflicts in their intellectual property policies. Issues of importance include manipulation of research results for personal enrichment, inappropriate use of university-owned facilities and equipment, and improper influencing of graduate students to pursue research for profit rather than for knowledge. As Alabama universities become more involved in the creation of startup companies to commercialize their technologies and research, which may result in the acquisition of ownership interests by the university and the faculty inventors, these issues become more important and complex.

Seemingly small differences in the technology transfer office's size, professional makeup and policies make a surprisingly large difference to a university's innovation impact. The most productive institutions seem to have larger TTO resources per dollar of research spending, a greater tendency to employ trained engineers as TTO heads, bigger patenting budgets per dollar of research spending and a greater tendency to have seed funds. Based on research from the George W. Bush Institute, a university with a TTO staff of 20 employees will achieve an innovation impact score approximately 20% higher than an otherwise similar peer with a staff of 10. Notably, these technology transfer policies influence not only an institution's success in generating patents, technology licenses and spinout companies but also its research impact and teaching impact. To support technology transfer activities from public and private research institutions to companies in Alabama, the Alabama Innovation Corporation should work with TTOs at Alabama research institutions; faculty, researchers and students who have commercially promising ideas; and companies across Alabama.

MEASURES OF SUCCESS

Enacting legislation that would protect faculty members and universities from conflicts of interest.

Creating a statewide TTO coordinating office.

MILESTONES

2021-22

Support the passage of legislation to amend the Alabama Ethics Act to explicitly authorize university faculty to maintain ownership in for-profit activities that use the faculty's research findings.

Meet with statewide TTOs from other states to develop a best practice for creation of Alabama's statewide TTO.

2022-23

Obtain additional appropriations to fund creation and operation of statewide TTO (including the hiring of staff).

LEGISLATION REQUIRED: **YES**

ADDITIONAL FUNDS REQUIRED: **YES.** *(Funds could be reallocated from the Education Trust Fund to achieve these purposes.)*

2. TARGETED RECRUITMENT – ACTION

RECOMMENDATION:

Create a "Commercialization Scholars" program that allows for a public-private endowment to attract and retain eminent scholars working in areas of commercial viability consistent with the strategic guidance of the Research and Technology Strategic Roadmap (Roadmap). This would enable the steady recruitment of two to three new scholars each year, plus allow for targeted funding for one-time expenditures for research infrastructure (specialized laboratory equipment) needed to attract scholars.

BACKGROUND AND RATIONALE:

Talent is the foundation for Alabama's sustained growth in innovation. By bringing some of the brightest minds in science and technology to Alabama – and supporting their research while here – this Commercialization Scholars program would give the state's universities greater capacity to:

Attract more federal and private research grants, which expands employment.

Generate more discoveries and inventions, which leads to new products and companies.

Enrich the academic reputation of Alabama's universities throughout the nation and world. This last point is notable because attracting and retaining the Commercialization Scholars would work to organically attract and retain other researchers and students.

Further, attracting industry-leading scientists would work to increase the patents produced within the state. Patent activity helps measure innovation activity in the state on a more basic level. Overall, patent activity per employee in Alabama is well below the national median. Utility patent activity per 1,000 employees in science and engineering fields indicates a similar standing for Alabama, which ranks below each of its neighboring states. This data suggests that, despite the significant national funding drawn to the state, university-backed research is producing overall utility patent activity that is below the national average.

MEASURES OF SUCCESS:

The successful hiring of highly productive, widely published scientists in the fields identified in the Roadmap

MILESTONES:

2022-23

Meet with university officials to identify facility and faculty needs to lure capable faculty; focus should be limited to faculty with high commercialization factors.

Establish and fund a program to hire "Commercialization Scholars."

Develop targeted branding campaign for potential hires (e.g., advertise in the Research Triangle, work with recruiting firms to socialize the new program, etc.).

2023-24

Working with university partners, hire first cohort of Commercialization Scholars.

LEGISLATION REQUIRED: **NO**

ADDITIONAL FUNDS REQUIRED: **YES.** *(Funds could be reallocated from the Education Trust Fund to achieve these purposes.)*