

## **CRICC White Paper:**

### **Strategies for Building Applied Research Capacities at HBCU**

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Historically Black Colleges and Universities (HBCU) produce a significant proportion of the nation's African American and other minority graduates in the Science, Technology, Engineering and Mathematics (STEM) fields. Despite their basic research output being competitive with mainstream institutions, they lag significantly behind in applied research and commercialization of their research outcomes. This in part is because their faculty, having to carry heavy teaching loads, are left with little time to hustle for applied research contracts and grants. It is believed that collaboration between HBCU faculty and industry and other innovation businesses could bridge this gap and accelerate the development of applied research capabilities of HBCU.

Collaboration between HBCU faculty and industry and other innovation businesses can be a powerful tool for enhancing applied research and commercialization capabilities of HBCU. Here are some strategies that can be adopted to achieve this outcome:

1. **Establish Industry-Academia Partnerships:** HBCUs should establish partnerships with industry and other innovation businesses to foster collaboration between their faculty and industry experts. These partnerships should focus on developing research projects that align with the industry's needs and objectives.
2. **Create Internship and Apprenticeship Programs:** HBCUs should develop programs that offer students internships and apprenticeships in the industry. This will give students exposure to real-world industry problems and help them develop skills that are in demand in the marketplace. It also provides industry with an opportunity to evaluate potential future employees.
3. **Foster Entrepreneurship and Start-up Culture:** HBCUs should encourage entrepreneurship and start-up culture among their faculty and students. This can be done by offering entrepreneurship courses and creating incubators and accelerators that provide support for start-ups. This will help faculty and students develop the skills and knowledge needed to create successful businesses that can commercialize their research outcomes.
4. **Leverage Funding Opportunities:** HBCUs should leverage funding opportunities that support collaboration between academia and industry. These opportunities include Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) grants, as well as industry consortia and partnerships.
5. **Strengthen Technology Transfer Offices:** HBCUs should strengthen their technology transfer offices to ensure that they are equipped to handle the licensing and commercialization of their research outcomes. These offices should also be proactive in seeking out industry partners and developing relationships with them.
6. **Promote Intellectual Property (IP) Development:** HBCUs should encourage their faculty to develop intellectual property (IP) that can be commercialized. This can be done by offering

incentives for IP development and protecting the rights of faculty and students to their inventions.

7. Develop Industry-Relevant Curricula: HBCUs should develop curricula that are relevant to the needs of the industry. This will help ensure that students are prepared with the skills and knowledge needed to succeed in the workplace.

Overall, these strategies can help bridge the gap between HBCUs and industry and accelerate the development of applied research capabilities of HBCUs. By working together, HBCUs and industry can create a pipeline of talented individuals who are equipped with the skills and knowledge needed to succeed in the marketplace.

CRICC proposes to establish Cooperative Agreements with HBCU to:

- a. Review current capabilities and publications of STEM faculty;
- b. Match the faculty areas of expertise with businesses in allied fields;
- c. Coordinate collaborative proposals for applied research and innovation seeking funding to establish applied research projects at HBCU in partnership with industry and other commercial enterprises;
- d. Facilitate and provide support services for successful, timely and cost effective execution of funded applied research projects; and
- e. Establish and maintain linkages between HBCU and Industry partners.

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BIO:

Dr. James A. Fabunmi, obtained his Ph.D. in Aeronautical Engineering from the Massachusetts Institute of Technology (MIT), and has been a Research Engineer at Kaman Aerospace Corporation, Faculty member of Aerospace Engineering at University of Maryland College Park, Founder/Owner of the Advanced Engineering Design and Research (AEDAR) Corporation and Consultant to Major Industry, Government Agencies, Innovation Companies and Universities. Dr. Fabunmi has played leadership roles in domestic (United States) and international (Western Nigeria) efforts to promote innovation based economic development of the African Diaspora. He was instrumental in the creation of the US-based Capitol Regional Innovation Cluster Consortium (CRICC), the Association of Western Nigeria Innovations (AWENI), and the Postgraduate Innovation and Enterprise Startup (PIES) Network. He currently resides in Mitchellville, Maryland and can be reached via email at JFABUNMI@ALUM.MIT.EDU