HBCU engage

HBCU ENGAGEMENT AND COLLABORATION
Deliberate, strategic engagement to deepen research and programmatic partnerships.

UIDP
Strengthening
University-Industry
Partnerships

APRIL 18-19, 2023 • NASHVILLE, TENNESSEE

Industry engagement with Historically Black Colleges and Universities (HBCUs) has focused on talent recruitment and retention, but HBCUs are gaining additional attention from companies and other universities for research collaboration. At the same time, U.S. government agencies significantly increased investment in research and related programs at HBCUs, such as strengthening research capacity and stimulating external research investment through solicitations that require multi-organizational partnerships.

HBCUs, industry, government, nonprofits, and other institutions have much to gain by collaborating and partnering for research and program development. HBCU Engage is a unique forum that brings together representatives from all sectors to enhance partnerships and forge new collaborations.

Locally co-hosted by Tennessee State University, Fisk University, and Meharry Medical College, HBCU Engage 2023 was held April 18-19, 2023, in Nashville, TN.

"My first event — loved the balance of attendees related to academia to industry and other sectors. Venue formats and topics allowed for flexibility in gaining new content and networks. Inspired for the future!"

– Fran Hutson, EMD Group

ANGELA HWANG, SYNOPSYS

The event convened **430 representatives from 173 unique organizations** to share practical ways to enhance research engagement with one another. These thought leaders, practitioners, and experts from across sectors candidly discussed ways to work together across talent, research, programmatic, and government engagement.

The forum offered actionable takeaways from connectors who work every day to strengthen multi-sector partnerships. HBCU attendees far outnumbered participants from any other sector, but importantly, HBCU leaders were also on the podium, sharing their perspectives throughout the conference. Event organizer UIDP secured expertise from 109 presenters and speakers from diverse organizations. Meeting attendees can download materials from many of the sessions through the UIDP Resource Center.

HBCU Engage began with a full day of workshops, offering attendees successful, well-tested approaches in a range of topics, from corporate engagement models to managing intellectual property and building an innovation district. On the second day of general sessions and breakouts, participants exchanged ideas and learned from peers in government program leadership, academic and corporate engagement, research administration, and talent development. Another event highlight was the HBCU Engage PitchFest, featuring two strong student teams—selected from 34 teams representing 16 institutions—that pitched their research ideas to a judging panel.

This report includes high-level takeaways from every session at HBCU Engage. But among the most valuable elements of an event like this are the one-on-one conversations that are sparked during a session or take place during a break, over lunch during a table topic session, or in a focused conversation over dinner. These serendipitous moments are a primary motivator for being a part of HBCU Engage. Below are a few of the high-level themes we observed from the event:

HBCUs seek long-term industry partnerships, not one-offs. Relationships must be transparent, tailored for the unique needs of each HBCU, and mutually beneficial; transactional programs for talent recruitment are less impactful or appealing.

Industry should focus less on HBCU research *status* and more on research *focus*. Smaller HBCUs are doing exciting research, too. Of the 107 HBCUs, there are many beyond the R2 cohort that seek to grow partnerships with industry and possess significant capabilities that can be leveraged by partners to advance their goals. State-of-the-art research is happening across different types of institutions, and potential research partnership focus can vary widely.

Support HBCU faculty and programs for effective talent development. The event generated numerous ideas for ways to buttress HBCU talent. For example, partner programmatically with faculty to build and shape the curriculum you want future talent to learn. Explore opportunities for faculty to spend time in industry to update knowledge and strengthen research relationships. Fund faculty support to free professors from full class loads, allowing them more time for research. There are many ways to invest in faculty for long-term ROI.

Consortia and multi-institution programs offer advantageous opportunities. Whether it's pooling resources to share capabilities or collaborating geographically across sectors and institutions to engage in large-scale federal grants, this is the right time to find mutually beneficial reasons to join forces and jump-start partnership efforts.
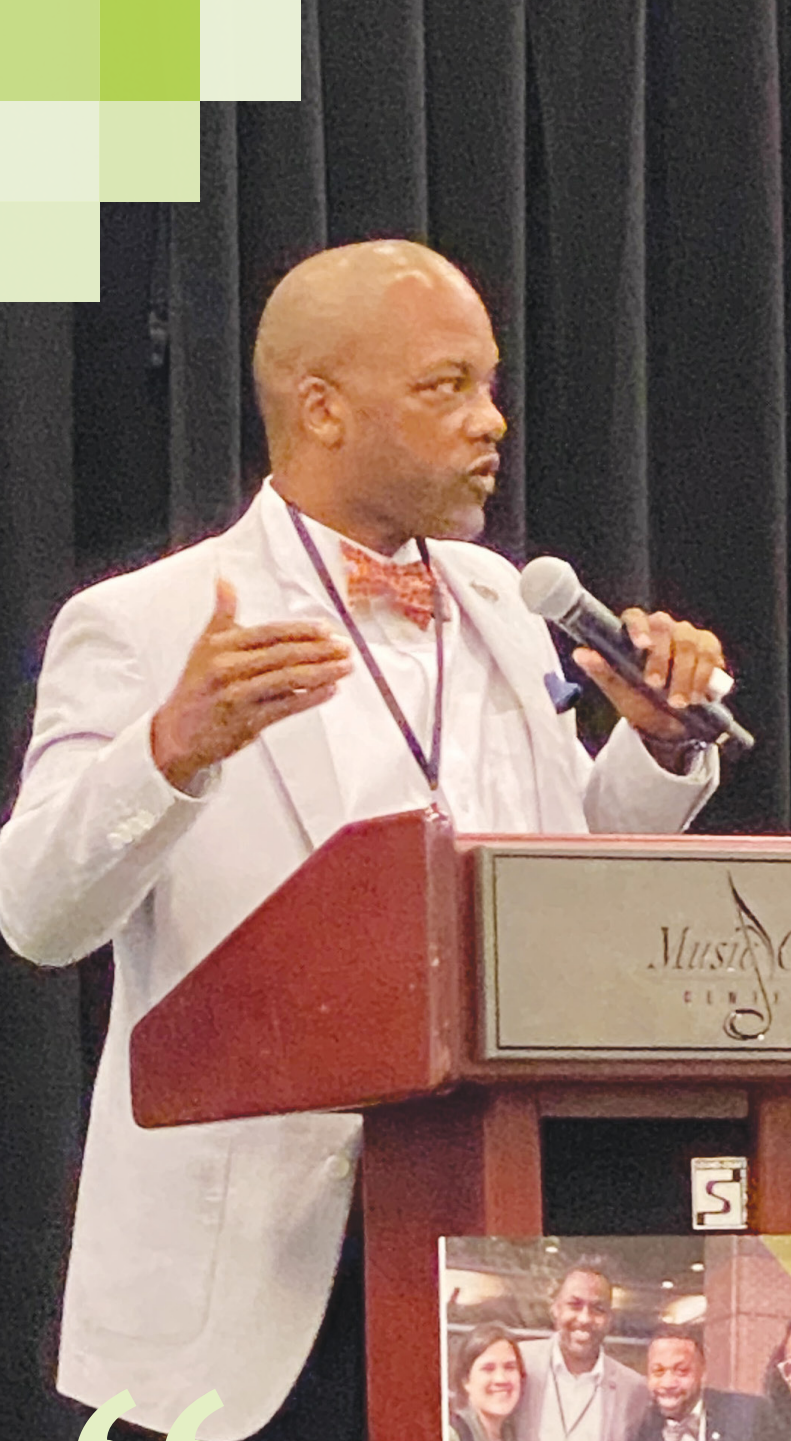
QUINCY QUICK, TENNESSEE STATE UNIVERSITY

Industry-Sponsored Contract Negotiation

Speakers Gloria Greene, University of Alabama at Huntsville; Jarrett Ellis, Georgia Tech; Matthew Lee, Morgan State University; Yogesh Sharma, Novartis

This workshop reviewed key terms and conditions difficult to negotiate between both institutions of higher education and industry partners, leveraging the UIDP Contract Accords and the UIDP community's significant expertise. Specific examples and terms were reviewed to develop a better understanding of these barriers and pragmatic solutions that can be implemented to expedite the process. Participants learned methods for better communication to aid in the negotiation process and develop techniques to find common ground when executing a research agreement. There was an opportunity for participants to share their experiences and what has worked at their institutions and to also ask thorny questions.

Key Takeaways:

Higher education and industry are different and can more rapidly arrive at solutions under the right circumstances. Institutions adhere to state and federal requirements. Recognizing universities' limitations can help expedite negotiations.

Infrastructure and staffing are central to successful contract negotiations. It's important to identify intellectual property, sponsored research, legal, and grant officers at the beginning of the process.

Having a dedicated university-industry contracts office is beneficial. It can bring specialized knowledge and expertise and can streamline processes in contract negotiation while ensuring both university and industry needs are met.

"The diversity of attendees from sister HBCUs, government agencies, and industry provided a unique opportunity for sustained mutually beneficial relationships and opportunities for meeting workforce development, research, and innovation needs of all participants."

– *Quincy Quick, Tennessee State University*

Building and Operating an Effective Corporate Relations Program

Speakers: Chris Rowe, Vanderbilt University; Jenna Weiss, Pfizer; Keisha Demps, NC State University; Kristin Leek, Boeing; Audrey Simmons Smith, Florida A&M University

This workshop addressed methods for organizing corporate engagement offices to provide efficient and holistic engagement experiences for industry partners. Specific issues covered included an overview of the benefits and challenges of the various corporate engagement approaches from the lens of universities and industry, examples of internal coordination techniques from other models, and a framework to improve university-industry relations and provide mutually beneficial long-term relationships.

Key Takeaways:

Champions are crucial in both industry and academia. The most successful and sustainable partnerships have single points of contact that are the champions for the collaboration. These contacts should have a broad understanding of their organizations and be intimately familiar with their approach to engage and steps to further collaborations.

Consistent communication sustains relationships. It is vital to keep open lines of communication. Targeted and consistent updates, articles, publications, and more can keep these lines open.

Storytelling sparks ideas for engagement. Industry partners find it useful to learn about current partnerships at academic institutions. Provide case studies and partnership stories publicly to foster new relationships.

Universities should use an external, user-friendly, and easily discovered portal with current information. This can help to connect the right people internally to handle outcomes desired by potential partners.

A single, well-maintained customer relationship management (CRM) solution across an institution can be useful. Get buy-in and encourage regular use by all stakeholders to better coordinate and inform people of activities taking place with partners.

Involve the contracts office earlier in the relationship. This can provide more context about the structure and outcomes of the industry-university partnership and thereby improve contract negotiations.

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> "The HBCU Engage meeting is a must-attend for all, not just HBCUs. The event provides an opportunity for PWIs and RIs to learn more about HBCUs and the outstanding research they are doing. If the opportunity presents itself – attend the next UIDP HBCU Engage. You will not be disappointed."
>
> *– Gloria W. Green, University of Alabama, Huntsville*

WENDI YAJNIK, NOVARTIS

Contemporary Approaches to Adding Research Facilities

Speakers: Punit Jain, CannonDesign; Regal Leftwich, CannonDesign; Kim McCalla, Morgan State University

As institutions expand their research engagement, adding facilities critical to supporting both faculty and external partners. Participants discovered current models for adding centers and facilities to enable growth and how they can bolster current and future research collaborations.

Key Takeaways:

Academic and industry partnerships must be creative in the ways that they collaborate. For example, industry partners can teach courses at academic institutions to establish and support existing relationships. This type of activity can manifest into greater investments in the institutions through research and funding opportunities.

Institutions must be intentional about collaborations as they expand research capacity. Building design should incorporate learnings and how best to leverage new facilities and incorporate spaces that combine related disciplines, create communities, and are flexible for evolving student populations, research environments, and partnerships with other institutions.

Activating research is important for sustaining a culture of research and for future collaboration and investment. Activated research can take the form of "science on display" where researchers perform their work in an environment that is both open and inviting. Activated research may involve difficult conversations with faculty who resist partaking in grant-funded research.

Creating a Culture to Enable Innovation and Entrepreneurship Leading to Impact

Speakers: Mark Veich, The Deerfield Foundation; Laura Collins, North Carolina A&T University; Alan Bentley, Vanderbilt University; Taunya Phillips, University of Kentucky; Kathleen Rousche, NIH

As universities across the nation seek to lead and support their innovation ecosystems, establishing a culture that supports innovation and entrepreneurial impact is key. Workshop participants heard from representatives about activities to enable university startups and spinouts, prioritize innovation in the workplace, and support organizational interest in commercialization.

Key Takeaways:

Encourage innovation with professors through policy. Innovation can be seen in many actions, but policies (e.g., promotion and tenure) must be well thought out to avoid discouraging innovation.

Use partnerships to support innovation. For example, build capacity with the help of related areas, like patent and technology transfer offices.

Experiential learning is incredibly important for entrepreneurship. Students need hands-on learning to inspire innovation and vision.

Managing Intellectual Property

Speakers: Almesha Campbell, Jackson State University; Robert Turner, Tennessee State University; Joy Goswami, Johns Hopkins University; Kannan Grant, University of Alabama at Huntsville; Wendi Yajnik, Novartis; Peter Van Nortwick, Wellspring; Pradeep Fulay, National Science Foundation

Intellectual property (IP) created by academic researchers as part of industry-sponsored research agreements has been the subject of considerable discussion between universities and their collaborators, and new models have emerged to provide clarity and efficiency. This workshop explored the various avenues for managing IP via both traditional and alternative models.

Key Takeaways:

Not all innovation leads to the need for IP protection. It's important to evaluate the discovery and confirm it is unique, novel, and has market value before taking steps to commercialization.

The global innovation game is changing, and that includes IP. Software platforms offer a fast, secure way of managing IP, with ways to manage disclosures, agreements, workflows, and more.

Federal awards have their own reporting requirements. For example, NIH grantees and contractors must disclose each invention within 60 days, resolve election or waive of title within two years, and file patents within one year of election.

Building Innovation Districts

Speakers: Kevin Byrne, The University Financing Foundation (TUFF); David Tyndall, Collaborative Real Estate (CRE); Freddie E. Wills, Harris-Stowe State University; Kevin Sullivan, Shaw University; Ray Trapp, Research Triangle Foundation of North Carolina

Workshop participants learned strategies for identifying champions, securing funding, and engaging key stakeholders for university research parks and innovation districts, and how new models of university-engagement and place-making are reshaping university-corporate partnering across fields.

Key Takeaways:

Do not let real estate get in the way of programming. Innovation district success is rooted in its programming.

Campus, community, and commerce work together. They feed off each other for success. The value of living, working, playing, and learning in close proximity creates a built environment that supports all aspects.

Philanthropy, state, federal, and tax-exempt funding all work together to bring costs down. By leveraging diverse funding sources, innovation ecosystems reduce the financial burden on individual entities, ultimately fostering more growth and sustainability in the region.

The innovation district requires support, such as networking, mentorship, and access to capital. For example, HBCUs have historically been and still are supporting entrepreneurship, but the connections to funding are lacking despite its availability. An intentional effort to collaborate/network is required.

It is imperative that innovation districts drive inclusive outcomes for local communities. Many innovation districts sit in urban centers in cities and employ people with advanced degrees without creating jobs for residents. Addressing these discrepancies must be a part of the development process for an innovation district.

Location matters. Leveraging local partners and putting your institution on the map is critical for success. For a city or region to be a global leader in a particular field, the workforce in the region must look like or reflect the world. In one example discussed during the workshop, Harris-Stowe State University representatives described leveraging its position as an HBCU in a growing technology center, which was critical to the region's success.

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"What a great place to network and find allies interested to collaborate with HBCUs on important research."

– Kevin Sullivan, Shaw University

Partnering with National Labs

Speakers: Cathy Fore, Oak Ridge National Laboratory; Elsie Quaite Randall, Lawrence Livermore National Laboratory; Terrence Buck, Idaho National Laboratory; Crystal Canja, Frederick National Laboratory for Cancer Research; Albert Sweets, Morgan State University; Moody Altamimi, Oak Ridge National Laboratory

National laboratories possess tremendous assets, ranging from specialized instruments and facilities to world-class researchers and technologies. With their emphasis on translating basic science and engineering into innovative products, materials, and processes, collaboration with the national labs is sought by university and industry partners. This workshop explored the practical challenges and opportunities for doing research with these facilities.

Key Takeaways:

There is strength in numbers. HBCUs should partner with one another and with more research intensive schools to apply for collaboration opportunities with national labs and larger funding opportunities.

Resources are available, but might be hidden. Examples discussed in this workshop were other transactional authority (OTA), which supports funding, and CoSTEM for researcher education on how to speak the national lab and government language.

National labs can support HBCUs in building capabilities. This does not necessarily mean giving a dollar amount, but instead building relationships for student internships and subsidies for faculty to be paid to work at the national lab so they are free from taking on a full course load.

National labs plan about five years out for funding/focus areas. There are a number of ways HBCUs can strategically link with them, either through a national lab staff member serving on an advisory board or by inviting a national lab researcher to speak (or even teach) a class.

Contracts are relevant. HBCUs may be forward-looking about their current and future capacity-building needs and should include those needs in discussions and contracts.

Relationships are key to pushing innovation forward. Innovation thrives when people or groups share their expertise, resulting in more success for all.

NICHOLAS HILL, CLAFLIN UNIVERSITY

Winning Large-Scale Federal Awards

Speakers: Talitha Washington, Atlanta University Consortium Data Science Initiative; Subrata Acharya, National Science Foundation; Brenda Dillard and Michael Hester, MSI STEM Research & Development Consortium

Winning federal awards is both highly competitive and complex. This workshop offered methods for short-term success as well as ways to build a sustainable, long-term strategy for pursuing large, multi-year opportunities.

Key Takeaways:

All of the elements for success won't exist in a single person. It's best to have a person with expertise in each element of your strategy.

When writing a proposal, use a critical eye to read how solicitations and related legislation are written. Mirror the language, logic, and expectations from these in your proposal.

Create backup documents early. Do a compliance check to ensure documents comply with constantly changing guidelines.

Working with Private Foundations

Speakers: Sandra Laney, SJL Advising; Elizabeth Weiss, Science Philanthropy Alliance; Teresa Orok, Alabama A&M University

Over the years, many universities have engaged with private foundations to support organizational missions and growing infrastructure. This workshop provided specific, practical guidance on the key aspects of working with private foundations, from engaging donors to sustaining long-term mutually beneficial relationships that go beyond transactional activities.

Key Takeaways:

Foundations vary in structure and funding interest areas. No two foundations are alike. Foundations determine funding areas through personal experience, perceived impact, landscape/SWOT analysis, federal trends/filling funding gaps, and tax incentives.

New vehicles are being developed to give money using different approaches. For example, in trust-based philanthropy, funds are given in an unrestricted way for operational expenses rather than funding a project. Planning grants are also in the mix, where anywhere from $50,000 to $1 million is given for capacity building.

Human capital to do the due diligence and identify foundations is a challenge. There isn't capacity in many cases to try to find the right philanthropic group. One solution is to start with funders who are interested in funding in a particular geographic location.

All of Us Researcher Academy: Advancing Research through Sustainable Collaborations

Speakers: BriAnna Walker, Sula Hood, and Javan Carter, RTI International; Kristen Rhinehardt and Yvonne Ford, North Carolina A&T University

In supporting the National Institute of Health's All of Us Research Program, RTI International is part of a consortium working to develop innovative and impactful experiences for participants as NIH diversifies the field of biomedical research. Attendees learned about RTI International's All of Us Researcher Academy, including methods for institutional research advancement and participation opportunities for faculty, students, and postdocs. This workshop highlighted experiences of HBCU Champions, academy learners, and users of the All of Us Researcher Workbench.

Key Takeaways:

For effective communication, establish infrastructure. For example, clear goals and milestones are key to a meeting's success. Participants should be informed of their environment and be transparent with each other about changes in the relationship.

Partnering organizations need to assess their impact. Organizations should be aware of the community that is benefiting from the partnership as well as the organizational impact. If a partnership is not beneficial to both parties, it should be reassessed.

The goal of All of Us Researcher Academy is to accelerate research discoveries. When health research includes participants from underrepresented communities, new kinds of individualized health care can be created.

All of Us Researcher Academy includes a wealth of health data from traditionally underrepresented communities to support research. Data accessible from the All of Us Researcher Workbench includes electronic health records, biosamples and bioassays (genomics), surveys, physical measurements, and wearable devices data, with plans to enroll more participants and integrate new types of data in the future.

Federal Legislative Update

Speaker: Michael Ledford, Lewis-Burke Associates

U.S. federal legislation is having a greater impact on university-industry partnerships. This session discussed current and future federal legislation and initiatives supporting collaborations.

Key Takeaways:

There has never been a more opportune time to get federal funding for university-industry-partnered research. Current and new funding provides opportunities for partnerships to expand.

Although things seem highly divided, there are some great unifiers in research and national security.

Partnerships are receiving unparalleled federal support. In addition to the CHIPS and Science Act, other programs such as the EDA Regional Technology and Innovation Hubs are receiving funding.

ABBY REGAN AND CHARLESON BELL, VANDERBILT UNIVERSITY

The Growing Innovation Ecosystem in Nashville and Beyond

Moderator: Abby Regan, Varian

Speakers: Quincy Quick, Tennessee State University; Abby Trotter, Life Science Tennessee; Charleson Bell, Vanderbilt University

As an innovation ecosystem, Nashville has received praise for access to talent, physical infrastructure, capital, and a network of partners. With perspectives from local universities, large corporations, and recent startups, this panel explored ecosystem goals, current areas of growth, future challenges, and anticipated needs.

Key Takeaways:

Building an innovation ecosystem is not a happy accident. It requires purposeful action at all levels, including government, university, and industry.

Diversity, using a broad definition, is key to sustaining an innovation ecosystem. Having diversity as part of your strategy will enhance efforts to bolster your research enterprise, but a true focus on the diversity of background, race, etc., will result in a better and more sustainable innovation ecosystem.

Relationships are key to pushing innovation forward. Personal engagement is critical. Innovation thrives when people and groups share their expertise, resulting in more success for all.

Sustainable Research Partnerships with Emerging Research Institutions

Speakers: Camelia Kantor, Penn State University; Nicholas Hill, Claflin University

In many cases, teaching-focused and research-intensive universities may only collaborate within external funding timeframes without strategic plans for long-term, sustainable partnerships at all levels of the organization when funding runs out. This talk discussed a model used by Penn State University and Claflin University to create personalized experiences (from faculty exchanges to lab participation), leading to trusting investigator partnerships for research capacity building.

Key Takeaways:

For a sustainable partnership that goes beyond securing funding, collaborators should match research areas through both strength and common interest. Institutions should not seek to partner with another organization during the final hour of a funding proposal because these relationships will lack depth and will be difficult to maintain.

Forming a partnership should not be taken lightly. Both parties should be encouraged to test the waters and pilot the collaboration to ensure feasibility at every level of engagement. If not, partnerships will be short-lived or burdensome to participants.

Through knowledge sharing, partners can build parallel and joint capacity. Research-intensive universities may share pre-award support, grantsmanship know-how, and faculty support, while emerging research institutions may contribute research ideas for funding and spinouts with unique community impacts.

ELLEN CHANT, DOE; MELINDA COFFMAN, USDA; STEPHANIE DAVIS, NIH; DEREK PARKS, NOAA; KATHLEEN GILPEN, APEX; AND MAGGIE YANCEY, NASA

Partnering with SBIR Offices to Accelerate Innovation

Speakers: Stephanie Davis, National Institutes of Health; Kathleen Gilpin, APEX Accelerators; Derek Parks, National Oceanic and Atmospheric Administration; Eileen Chant, Department of Energy; Melinda Coffman, U.S. Department of Agriculture; Maggie Yancey, National Aeronautics and Space Administration

U.S. Government Small Business Innovation Research (SBIR) programs offer vital resources for advancing impactful research that will transform the national landscape. This breakout session explored funding opportunities available through federal agencies and discussed how universities can partner to achieve efficiencies in intellectual property management, talent development, and more.

Key Takeaways:

SBIR/STTR are federally-funded contracts and grants to stimulate commercialization. This is nondilutive and does not need to be paid back. This funding is perfect for de-risking technology to be more attractive to other funders.

SBIR pathways are not one-size-fits-all. SBIR offices across agencies recognize that diverse options work for a range of different support levels. Phase I and Phase II allocations differ across agencies.

Participants are encouraged to apply for funding across multiple SBIR offices. Be transparent and agencies will work to make funding match an applicant's goals.

The Value of University-Industry Certification Programs

Speakers: James Jennings, University College London; Amanda McCrory, University College London

Professionals in the university-industry partnership community gain diverse and deep experience over the course of their careers, but how can individuals communicate their knowledge capabilities to stakeholders? This session explored current models of embedding university-industry collaboration in professional education and how professionals without formal training can use certificate programs to demonstrate skills attainment in university-industry relations.

Key Takeaways:

There are mutual benefits to universities and industry in developing university-industry certification programs. These include workforce development and addressing the lack of bandwidth in the company.

These programs expose students to a range of career pathways. These new opportunities are relevant to available jobs and relate to students' personal interests.

Companies must understand the need to develop pathways rather than pipelines. This mutual understanding can prompt companies to provide funding to create these certification programs.

Investigator-Initiated Clinical Research

Speakers: Anil Shanker, Meharry Medical College; Pam Polino, Merck; Jing Belfiglio, Vanderbilt University

Investigator-initiated research can be crucial to innovative discoveries as it drives translational research and often addresses critical medical needs. But what are the issues industry partners face in investigator-initiated research? This breakout session explored the challenges that present when a university or principal investigator (PI) applies to a company for sponsored clinical research.

Key Takeaways:

Negotiate the budget first. Financials can be a deal breaker, so come to an agreement before moving to other matters.

There is sometimes a lack of coordination between the PI and the institution. Hiring an external vendor for investigator-initiated studies can mitigate this on the corporate side.

It may be helpful to negotiate the broader agreement in advance to save time and then get more specific with the details of the study.

Industry Involvement in University Curriculum

Speakers: Mia Fujii, Siemens; Anne Innis, University of Utah; Sajid Hussain, Fisk University; Kimberly Greene Starks, IBM

Companies, foundations, and other organizations have a long history of working with universities to establish new and important curriculum areas, ranging from whole schools and departments to focused degrees and courses. This breakout session explored the various formal mechanisms and processes to establish new curriculum, lessons learned from past collaborations, and future goals.

Key Takeaways:

Expertise is only for today. Continual learning is of the utmost importance because technology, processes, and practices are constantly evolving. Invest in a knowledge base that continues to update as time goes on.

Engage faculty right away. Share sponsored program research with incoming faculty. Partner faculty members with subject matter experts to engage students and build relationships.

Right knowledge, right place, right time. Cross-collaboration is critical so there is alignment between what is being taught and how it is used in industry. Companies can contribute to workforce development by staying involved and helping to facilitate interdisciplinary research at the university.

> "UIDP's HBCU Engage provides a unique, high impact environment in which to make valuable connections as a starting point for collaboration conversations. Kudos to UDIP for investing in the power of partnerships!"
>
> — *Luwanda Jenkins, 1890 Universities Foundation*

Strategically Incorporating Companies into Government-Funded Proposals

Speakers: Kristina Thorsell, UIDP; Amanda Palumbo, Dow; Melissa Harrington, Delaware State University; Deborah Hernandez, The Ohio State University

Increasingly, government solicitations require some degree of industry involvement. This session considered the many ways a company can participate in government-funded opportunities and identify common challenges such as timelines, intellectual property, confidentiality, and reporting requirements.

Key Takeaways:

Industry partners are there for more than just writing a check. Industry partners can bring resources (often unique ones) and expertise to campus or host students and faculty at their own facilities. Companies may also prefer to provide support via cost-sharing as opposed to just cash.

Consider industry motivators. When considering partnerships, companies consider things like the entrepreneurial ecosystem, risk mitigation/development, and getting an early view into talent. Understanding company motivations can help to streamline collaboration.

Focus has increasingly shifted to ecosystems. There is more emphasis than ever on seeing discoveries through to commercialization. Key focus areas include regional economic and workforce development.

Partnering with RTI International

Speaker: Jacqueline Olich, RTI International

Through signature programs and bold initiatives, RTI International collaborates with academic institutions to address the world's most critical problems with science-based solutions in pursuit of a better future. In this spotlight session, participants learned about how the research institute partners with HBCU administrators, faculty, and students in programs ranging from the RTI University Scholars Program and the RTI Internship Program to innovative multilateral research collaborations, including Forethought: The RTI $5M Research Collaboration Challenge.

Key Takeaways:

Collaboration at all levels relies on building a partnering culture. RTI International has universities on its board of governors to ensure communication between partners and to ensure partnership is a part of the organization's DNA.

Students are a critical part of the innovation ecosystem. RTI ensures that diverse students have access to innovative internships. These were made impactful through regional collaboration on the topics and scope of the internship.

Faculty researchers can engage in research with RTI through the RTI University Scholars Program, which provides hands-on academic research experience on externally funded joint projects.

AMANDA RODRIGUES SMITH, ALI SEKMEN, SHOBA SUBRAMANIAN, AND MONROE KENNEDY III

Cross-Sector Collaboration Mechanisms to Broaden Diversity in Higher Education, Research, and Technical Workforce Development

Moderator: Amanda Rodrigues Smith, Amazon

Speakers: Harry Keeling, Howard University; Monroe Kennedy III, Stanford University; Ali Sekmen, Tennessee State University; Shoba Subramanian, Amazon

Panelists explored the perspectives of researchers and faculty who are pioneering new engagement models to build sustainable infrastructure for academic partnerships, talent development, and differentiated research in emergent STEM industries. Universities are the bedrock of training the next generation workforce and providing the right environment to innovate with cross-disciplinary scientists, engineers, mathematicians, social science researchers, and more. In particular, university-industry collaborations support the creation of new technologies to enable real-world solutions, better customer experiences, targeted resources, and pathways to diversify the workforce, which set the bar for new practices for an inclusive future of tech within corporations, academia, enterprise, and beyond.

Key Takeaways:

People of diverse backgrounds bring unique perspectives. They understand collaboration issues and are ideal candidates for roles in cross-sector collaborations.

Partners need to build mutually beneficial collaborations. Understand your partner's needs and your own—if not, the relationship will fail.

There should be opportunities for companies to invest more than financially in students. This includes internships, employees teaching on college campuses, providing company tours, or intensive boot-camp-like training.

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"At HBCU Engage, I continued to grow my network, sharing the research strengths at NC A&T with representatives from universities, industry, and in a panel discussion."

– Laura Collins, North Carolina A&T University

It was our pleasure being at UIDP Nashville with all of you. There are few venues that so seamlessly convene university, industry, and government partners to allow all to build new, and strengthen current, university-industry partnerships.

Elsevier's Research Intelligence solutions help institutions raise awareness, showcase existing research expertise, and build reputation to increase industry collaboration opportunities. Beyond sharing your research capabilities with industry partners, our tools help you assess how existing partnerships and collaborations are performing and inform strategic planning to enhance team building for stronger collaborations. Generate these insights with tools like SciVal, Scopus, and Pure to help achieve strategic research goals.

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Synopsys Academic and Research Alliances

Speaker: Angela Hwang, Synopsys

Synopsys is an electronic design automation (EDA) company that focuses on silicon design and verification, silicon intellectual property, and software security processes used in semiconductor design and manufacturing. Through innovative collaborations, shared programs, and access to advanced technologies, Synopsys Academic & Research Alliances (SARA) is dedicated to furthering university research and education in the field of electronic design. Angela Hwang described how Synopsys works with academic partners to pursue current research interests and funding priorities.

Key Takeaways:

It takes a village to fabricate a chip. Chip design and fabrication rely on science and technology from many companies with specialty expertise—core IP, materials and chemicals, electronic design automation tools, and different fabrication techniques.

Confluence of software and hardware is a megatrend. Software drives product differentiation, and chips make customization possible. Consumer companies are designing their own chips to meet custom needs. That requires optimized software and an agile workforce.

Synopsys Academic & Research Alliances (SARA) bridge gaps through new innovation/collaboration activities.
» The **University Software program** trains engineering students in Synopsys software. The Education Partnership program connects with students in capstone projects, contests, and hackathons.
» **Research Partnerships** bring academic and Synopsys researchers together to develop leading-edge solutions.
» The **Academic Ambassador program** partners Synopsys employees with universities to mentor, support research, train in software, and partner in government-sponsored research.

JACKSON STATE UNIVERSITY
REPRESENTATIVES AT THE HBCU PAVILION.

CLARENCE ANTHONY, JR.,
PARTNERSHIP FOR INCLUSIVE INNOVATION

Building Talent through Mentorship

Speakers: James Lu Morrissey, Mentor Collective; Xiangyi Zhang and Rosalyn Kent, Dow; Karla Spears, Prairie View A&M University; Brittney Miller and Monica Ferrini, Charles R. Drew University of Medicine and Science

To increase the number of historically underrepresented students pursuing doctorates in STEM fields, companies are exploring initiatives that will allow not only for investment but also access to an industry-ready talent pipeline. In this breakout session on mentorship programs that support Ph.D. enrollment and talent acquisition, representatives shared current efforts, program interests, and lessons learned.

Key Takeaways:

Mentorship builds social capital and is important for future employment, but it's not widely available. More than half (57%) of undergraduates do not have mentorship experience.

Workforce development is crucial, but only 10% of business leaders believe college effectively prepares students for the workforce. Mentoring companies can facilitate the complexity of mentoring programs. The costs should be considered in the context of the overall cost of talent development.

Dow's SURE program serves to build equity in the talent pipeline. Dow's program gives on-campus undergraduate research experience with a Dow mentor.

Investing in Alternative Workforce Development Programs

Speakers: Jennifer King, Bisk; Richard Alo, Florida A&M University

The Florida A&M University (FAMU)-Bisk Education partnership is designed to develop the cybersecurity workforce by providing an alternate career pathway targeting individuals underrepresented in this industry and field (women, historically underrepresented minorities, etc.). Three cybersecurity bootcamps were launched in 2023, providing over 60 grant-funded scholarships for participants. This breakout session explored the role universities and industry partners can play in supporting alternative career paths and how their investment can help broaden participation in STEM.

Key Takeaways:

Bisk is a small, private, online education technology company. It works with colleges and universities to bring academic programs online. With FAMU, Bisk provided an alternate career pathway in cybersecurity for underrepresented students.

Workforce development is the focus of the Bisk-FAMU partnership. The Computing Technology Industry Association (CompTIA) grants certificates in technology skill areas. The scholarships to the cybersecurity bootcamps resulted in increases in internal measures such as employment and apprenticeships.

Partnerships are key to launching a technology workforce development program. Social service, apprenticeship, company talent development, and university programs can follow a similar pathway to enhance opportunities for alternative career paths.

Capabilities and Capability Statements

Speakers: Rodney Trapp, University of the District of Columbia; Michael Davis, Varian Siemens Healthineers; Brad Fravel, Virginia Tech

Capability statements are key to delivering concise information on a university's research expertise and collaboration opportunities with potential partners. This breakout session explored what makes a capability statement effective and what universities should reflect on when considering capacity to meet the needs of research partners.

Key Takeaways:

Understand the difference between capability and sustainability. A capability statement can be a tool to show the institution's ability to sustain relationships for the long term.

> " "When collaborating with potential funders, it is always optimal to find a community of interest."
>
> — *Iris Ramey, Tennessee State University*

Know who you are negotiating with. Tailor your message to the audience—be succinct and highlight the nuggets about your university that others may not be aware of or may be of high interest to your potential partners.

The culture of collaboration is paramount. Collaboration between units and companies demonstrates the sustainability of potential partnerships. Developing a more collaboration-centric culture can help to secure more partnerships.

Strategies for Reducing Contracting Time

Speakers: Keith Spencer, Spark Therapeutics; Terry Adams, Howard University; Emily Hostage, Columbia University; Jennifer Pak, Meta

UIDP fielded a survey at the close of 2022 on what can be done to reduce contracting time for industry-sponsored projects. This breakout session discussed the results of that survey and explored suggested strategies, why they might work, and what hurdles exist.

Key Takeaways:

In a pre-session survey, respondents identified several strategies for increasing contracting speed. These were having internal discussions up front about project expectations; developing an understanding of the missions and roles of the parties; using template agreements; and increasing expertise and training for contract negotiators.

For both companies and universities, internal discussion about the purpose and goals of the proposed research is important to get alignment on their negotiating position and what is important for the final agreement.

It is hard to define contracting time. When does the clock start? Some universities have started to develop metrics based on the issues negotiated and what issues arise for different industries. Company budget cycles mean that prolonged contracting time poses a very real risk for budget loss.

PRADEEP FULAY, NSF

Working Across Functional Units to Maximize Corporate Engagement Programs

Moderator: Nerissa Draeger, Lam Research

Speakers: Joshua Humbert, Coppin State University; Randall Wright, MIT; Anne O'Donnell, UC San Diego

A key component to university competitiveness, holistic corporate engagement empowers campus stakeholders to work with partners strategically and with one voice. In this breakout session, practitioners led a discussion on strategies for improving cohesive corporate relations, the role of internal data in supporting internal stakeholders, and practical advice for coordinating outreach across functional units.

Key Takeaways:

Culture and institutional norms are key to working across units. Creating an environment for comprehensive corporate engagement requires a mutual understanding and respect for the informal norms and culture of the university.

Communicate early and regularly. It is vital to bring internal partners into the development of an industry relationship early in the process. This fosters stakeholder commitment, trust, and transparency.

Clearly articulate roles for each unit. Knowing where responsibilities begin and end can help units act as one instead of multiple disconnected parts.

Growing from a Small Tech Transfer Office into a Research Powerhouse

Speakers: Terry Adams, Howard University; Carla Garic, Wellspring

Most tech transfer and industry engagement offices share a similar challenge. The vast majority of opportunities—whether it's research funding, sponsorship dollars, or licensing activity—naturally gravitate to a handful of the largest research institutions. This puts smaller institutions at risk of being understaffed, underfunded, and underperforming. Three years ago, Howard University was determined to push past the limitations. In this talk, Terry Adams and Carla Garic chronicled that journey, highlighting lessons learned in bootstrapping a small TTO into a fighting force without adding costs or headcount.

Key Takeaways:

The tech transfer process, from disclosure through patenting to license, is complex and hard for a small office to handle. A new office must put the foundation in place today to be a future powerhouse.

Software and external services, such as those provided by Wellspring, can fill critical gaps in an office's capabilities. Databases, search tools, and marketing tools are all available to help with tech transfer.

Aim to automate routine processes, such as logging invention disclosures, docketing legal actions, and financial transactions. This frees bandwidth for employees to focus on more complex and pressing issues.

Update from NSF's Directorate for Technology, Innovation and Partnerships

Speaker: Pradeep Fulay, NSF

In 2022, the NSF Technology, Innovation and Partnerships (TIP) Directorate emerged as the agency's first new directorate in more than 30 years. With a mission to accelerate discovery, rapidly bring new technologies to market, and address our society's most pressing challenges, the TIP Directorate has launched a series of initiatives to promote partnership and advance the U.S. ecosystem. This session provided an update on TIP activities, provided an overview of the innovation programs section, and shared TIP's goals for progressing a future of diverse and innovative collaborations.

Key Takeaways:

The TIP Directorate was established as a defining moment to address several key challenges: intense global competition; national challenges in diversity, especially within STEM fields; and socioeconomic challenges such as climate change, equitable access to education and health care, and critical, resilient infrastructure.

The R&D system is evolving, embracing partnerships to meet these needs. The pace of discovery is accelerated by data and emerging technologies. There is an opportunity to leverage partnerships to bring diverse expertise to the table to take advantage of these opportunities to address the challenges. There is new emphasis in the U.S. federal government to fund use-inspired and translational research in partnership with industry.

TIP programming focuses on the intersection of partnership and translational research. Programs include:

» NSF Regional Innovation Engines—Regional coalitions for use-inspired research to stimulate jobs and economic growth. First development awards were recently announced ($1M for up to 2 years), and then the awardees will compete for $160M/10-year awards.

» NSF Convergence Accelerator—Now preparing for its fifth cohort on equitable water solutions, real-world chemical sensing applications, and bio-inspired design innovations (see the solicitation). Multidisciplinary teams (academic and industry) use convergence research fundamentals and innovation processes to stimulate innovative idea sharing and development of sustainable solutions.

» Partnerships for Innovation (PFI)—For researchers with NSF funding, provides translational research funding toward proof of concept to future product, process, or service.

» Pathways to Enable Open-Course Ecosystems (POSE)—Funds open-source development of new tech solutions. Phase 1 funding is up to $300,000 for 1 year, and Phase 2 up to $1.5M for 2 years.

» NSF Accelerating Research Translation (ART)—Supports academic institutions to build capacity and infrastructure for translation of basic research into marketable solutions. Awards are up to $6M over four years.

» NSF ExLENT—Workforce development program expanding practical learning opportunities for organizations in emerging technology fields. Awards up to $1M over 3 years.

» NSF Activate Fellows—Entrepreneurial fellowship program for engineers and scientists to move technology from lab to market. Gives access to special equipment and facilities, plus two years of training and $350,00 in direct support.

If the takeaways described above prompt questions, please reach out to a member of our team.

GAYLE CONELLY MANCHIN

# Appalachian Regional Commission Invests in the Power of Partnerships

A generous grant from the Appalachian Regional Commission (ARC) funded travel and participation in HBCU Engage 2024 for 21 representatives from among the 15 HBCUs located within the Appalachian region. ARC's grant was a natural fit for this engagement initiative that fuels new HBCU partnerships.

ARC is a local, federal, and state government partnership focused on economic development and cooperation among the 423 counties in the Appalachian region. Established by U.S. federal statute, it empowers the local partners to cooperate to break down the barriers to economic success across Appalachia. Most of its programs focus on economic growth and investment in collaborative projects.

"We've realized that Appalachia as a whole doesn't have economic parity with the rest of the country. Minority communities have even less parity," said Gayle Conelly Manchin, who has served as ARC's federal co-chair since May 2021. Manchin is the first federal co-chair from West Virginia, in the heart of the region. She works directly with ARC's 13 member state governors, state program managers, and a network of local development districts. Together they collaborate to build greater community capacity and strengthen economic growth throughout Appalachia, which increases the region's ability to compete nationally and globally.

There's a strong connection between higher education and opportunities for economic growth, and ARC has been connecting the dots to support its HBCUs in particular. "ARC is committed to amplifying and hearing the voices of Black Appalachians," who comprise about 10% of the region's population.

"My background is in education, and as an educator, I have found it odd that workforce development and education are two different worlds. In my mind, any kind of workforce development is education," she said. "There is a lack of communication between our educational institutions and industry, but powerful economic results happen when business and education work hand in hand. Industry can define the skill sets needed, and the schools can revisit their curriculum to ensure they're fulfilling those needs. When a business is hiring, it's important to work together with higher education to ensure you're inclusive and have given everyone access to the education and training they need."
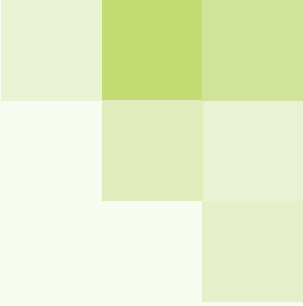
"I think we probably haven't done as good a job as we should have," she added. "But things are changing in a positive way because of efforts to bring focus to inequity and what we need to be doing differently."

ARC funds a range of programs to support HBCU students and economic development in tandem. Since 2005, it has awarded $160,000 to more than 50 students in 10 schools through scholarships and internships, including the Joseph L. Palmer Scholarship.

Manchin said that ARC has entertained grant proposals aimed at heightening awareness of the inequity of the Black community.

"We need to bring people together to find the solutions, and we need to involve business," she said. "If we have business and HBCUs involved in planning programs and curriculum, increasing diversity in the training and recruiting for these programs, and developing guidelines for hiring, we will see the landscape evolve. I think we're getting there, and I'm optimistic that we will be able to invest funding to do some powerful work. But it has to be intentional, focused, and measurable."

Manchin speaks of the potential to leverage the ARC region as a whole. Working cooperatively with representatives from every state in the region, ARC could serve as a platform to invest in economic development and growth opportunities that benefit 26 million people residing in the least economically strong counties in their respective states.

"If we think about ourselves as a region rather than a state, how much more powerful that would be," she said. "When we bring all of our people together, we're stronger together, united in the work we are doing in education, workforce training, and building the economy."

The HBCU Engage report is not intended to be a detailed record of the entire proceedings. Contact UIDP at info@uidp.net for any questions or comments about this report.

About UIDP

UIDP is a solutions-oriented global forum where academic and industry representatives find better ways to work together. Our membership, comprising top-tier innovation companies and world-class research universities, identifies issues affecting university-industry relations and seeks new approaches to partnership and collaboration. Together, we produce tools and resources to help members make a greater impact. We don't just talk about problems. We solve them. Learn more at uidp.org.

HBCU Engage 2023 was the second UIDP-organized event created in response to strong interest in mutual engagement for research and program advancement among representatives in industry, research-centric universities, and HBCUs. There are myriad ways to engage for research or to advance programmatic interests across the partnership continuum that provide benefit to all parties. Long-term, holistic engagement holds the promise of the greatest reward for investment. HBCU Engage 2023 was an energetic event fostering robust discussion around the common goals, barriers, and promising practices for engagement and underscored the need for more conversations and convening events. Make plans to join us for HBCU Engage 2024 in Baltimore, MD. Learn more at HBCUengage.org.

HBCU engage
Partnerships to Expand Research Capabilities

Baltimore, MD
April 16-17, 2024
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Our Mission: The UIDP supports mutually beneficial university-industry collaborations by developing and disseminating strategies for addressing common issues between the two sectors.