ANTHONY M. BOCCANFUSO

What It Takes to Become an Industry-Engaged University

Twenty years ago, US companies spent more than twice as much on research and development as the federal government. But in 2024, according to the latest figures, that amount had grown to nearly $4 for every federal dollar invested. As US artificial intelligence companies race to compete, investing colossal amounts in new models, compute capacity, and AI infrastructure, US industry dominance in R&D investment has never been more visible. Between 2013 and 2024, the government invested approximately $20.4 billion in AI-related grants and contracts. By contrast, US private industry invested over $285 billion in AI R&D during 2025 alone.

Industry research dollars are primarily expended internally, where most of a company's research is conducted—not in university research labs. Across the top 200 universities ranked by total R&D expenditures, the average percentage of total university R&D expenditures supported by business funding in 2024 was only 5.5%.

Despite this, the federal government—the primary funder of university R&D—has proposed actions over the past 18 months to deepen government-industry partnerships and send more federal R&D funding to industry. Moreover, a growing proportion of US federal research dollars requires strong partnerships with industry, including the National Science Foundation Regional Innovation Engines, the US Economic Development Administration's Regional Technology and Innovation Hubs, and Phase II Department of Energy Genesis Mission awards. With changes at the federal level upending decades of research funding norms, universities, too, are increasingly looking to industry for partnerships and funding.

In my experience leading the nonprofit University Industry Demonstration Partnership (UIDP), I often hear university research leaders voice a strong desire to significantly increase their level of industry funding for university-based research. According to the 2026 Strategic Partnership Survey conducted by *The Chronicle of Higher Education* and P3·EDU, 71% of higher education leaders (chancellors, presidents, provosts, chief financial officers, and cabinet members) see their institution's partnerships with private companies growing. A pivot toward stronger industry partnerships offers a range of benefits for higher education. Faculty and students engaged in industry-partnered research gain access to innovative resources and work to solve relevant, real-world research challenges. Students learn industry practices firsthand through collaborative research. Internships, co-ops, and fellowships frequently provide a pathway to a productive career. Industry engagement in shared research centers and training endeavors also advances universities' mission to increase economic prosperity in their communities.

In the partnership survey, university leaders cited workforce development and employee training as the area of their highest interest in partnering with private companies. Federal workforce training programs are especially well suited for industry partnerships. One example is the NSF Experiential Learning for Emerging and Novel Technologies (ExLENT) program, through which awardees work with companies to create experiential training programs to develop skills for those in high-demand technology jobs in artificial intelligence, biotechnology, and other science, technology, engineering, and mathematics (STEM) priority areas.

University-industry partnerships for workforce training are an area ripe for creative expansion. In July 2026, UIDP received an NSF award to pilot a new program integrating long-term industry research experience into PhD training for STEM students across the United States, offering a new approach for graduate research fellowships. We intentionally designed this $90 million UIDP I-PhD Scholars Program to reside within established university-industry partnerships. Instead of selecting program participants, we recruit university-industry partners who cooperatively select students, support four years of doctoral education, and provide joint advisement. Student preparation for industry careers is a powerful driver for partnership, and the program is designed to deepen partnerships and increase investment by meeting an industry market need.

This program provides a good illustration that, when there is a market rationale, companies wish to work with universities and to do so in diverse ways. But companies have more partnership options than ever before—collaborating not just with universities, but also with nonprofit research organizations, national or government labs, contract research organizations, small companies and start-ups, and nonprofit consortia.

In this competitive environment, it is not enough for university leaders simply to say they want to expand industry engagement. Becoming an industry-engaged university requires vision, intentionality, strategy, communication, and commitment to follow-through. To increase private-sector investment in academic activities, universities must evaluate how they engage with industry to identify market needs and then implement necessary culture change on campus.

Based on 20 years of UIDP cross-sector collaboration to strengthen partnerships, we've identified six specific characteristics that companies value in university partners. (See Table 1.) The first is a clearly articulated leadership vision. That must be supported by pragmatic supports: flexible, forward-looking approaches to contracting and to intellectual property; willingness to engage in areas the partner cares about, including models such as applied research in centers, consortia, or research parks; and understanding the partnership in the totality of a strategic relationship, including collaborative curriculum development and changes in incentives and recognition for faculty who engage with industry. In combination, these six characteristics often require culture change at the university, but they enable and support university-industry engagement.

Models of growth

Although few research and university leaders position "industry engagement" itself as an articulated institutional value, many principles that distinguish university excellence translate to an industry-friendly culture and structural processes that reduce barriers and enable industry partnerships to thrive. As universities look to grow and deepen their industry partnerships, there are many models of institutions that have already developed these qualities and achieved success.

For example, just months after becoming president of Arizona State University in 2002, Michael M. Crow laid out a vision for a "New American University," providing the principles that would undergird future decisions, organizational structures, and investments, summarized in a concise ASU Charter. ASU's Innovation Zone activities, Knowledge Enterprise, and Corporate Engagement and Strategic Partnerships units explicitly invoke the ASU Charter. While it took time for faculty to buy in to these views, once the New American University vision was operationalized, research investment advanced, innovation hubs multiplied, and the charter became a recruitment draw, with talented, entrepreneurial faculty signing on because of the vision.

Other characteristics of industry-engaged universities often flow from a strong leadership mandate as well. For example, both California Institute of Technology (Caltech) and Rutgers–New Brunswick saw their shares of business-funded research nearly triple in less than a decade, with the impetus in both cases being actions by leaders.

Caltech's rapid increase in business funding coincided with Thomas F. Rosenbaum's term as president. In 2014, the institution merged its corporate relations and technology transfer offices, creating the Office of Technology Transfer & Corporate Partnerships (OTTCP), a visible focal point for industry connection. Corporate collaborations, sponsored research, alliance management, entrepreneurship, and strategic partnerships came under a single office's remit.

Caltech's OTTCP promotes university-wide master research agreements, so companies can partner to support multiple types of collaborations, accelerate project deployment, improve negotiating leverage, and encourage cross-department research. The process emphasizes efficiency and long-term partnerships. Strategic industry collaborations have resulted in technology hubs in quantum technologies and autonomous systems, including testing and simulation infrastructure for industry use. Adding Amazon Web Services as Caltech's first on-campus, co-located institutional partner in 2018 was a major public extension of the relatively small institution's reach.

In the case of Rutgers, the pivot to increased industry engagement began with the university's 2013 integration with the University of Medicine and Dentistry of New Jersey, which included the Robert Wood Johnson Medical School, New Jersey Medical School, the Cancer Institute of New Jersey, and extensive clinical and biomedical research operations. In this case, it was the state of New Jersey that played a key role, explicitly mandating the merger through legislation that articulated a new vision to "allow for the

Table 1. **CHARACTERISTICS OF THE INDUSTRY-ENGAGED UNIVERSITY**

CHARACTERISTIC	EXPLANATION	EXAMPLES
1. Clearly Articulated Leadership Vision	Industry engagement, entrepreneurship, translation, and economic development are explicit institutional priorities backed by leadership and investment.	Arizona State University's "New American University"
2. Clear Front Door and Flexible, Forward-Looking Contracting Approaches	Companies have a clear entry point, dedicated partnership support, streamlined agreements, and flexible approaches to IP and contracting.	The University of Minnesota's Minnesota Innovation Partnerships (MN-IP) is a front-door model to streamline industry partnerships. The MN-IP Create program offers upfront terms and lets the company control patent filings. Companies can also wait to license after a project is completed. The Try and Buy program offers a trial period for companies to test-drive university technologies. Georgia Tech's Contract Continuum provides a public menu of contracting options for industry-sponsored research. The institution also provides downloadable sample agreements, offering a starting point for negotiation and contracting transparency.
3. Applied Research Capabilities Through Centers, Consortia, or Research Parks	Centers, consortia, institutes, and research parks give companies structured pathways to applied research, specialized expertise, and facilities.	Penn State's Applied Research Laboratory is a Department of Defense–designated University Affiliated Research Center and partners with government and industry for applied research. North Carolina State University's Centennial Campus integrates a research park into the campus. More than 70 industry, government, and nonprofit partners collaborate through this innovation hub.
4. Industry Co-Location Opportunities	Companies work alongside university researchers, utilizing on-campus facilities, shared laboratories, specialized equipment, or other collaborative research environments.	Rolls-Royce's 70-plus-year partnership with Purdue University includes designating Purdue the first Rolls-Royce university technology center in the United States. The company has invested in Purdue's Zucrow Laboratories, the world's largest academic propulsion laboratory, and its Hypersonics and Applied Research Facility. Faculty and students collaborate on projects that advance aerospace technology.
5. Collaborative Curriculum Development	Companies help shape curricula, experiential learning, capstones, certificates, and other programs that connect research with workforce development.	The NVIDIA–University of Florida Partnership includes the AI Technology Center and the NVIDIA Deep Learning Institute. The latter collaboration develops new curricula and coursework for students and the community, including encouraging K–12 students to develop interest in STEM fields.
6. Faculty Incentives and Recognition	Promotion, tenure, workload, and recognition systems value industry collaboration, innovation, entrepreneurship, and research translation. The movement to include innovation and entrepreneurship in faculty advancement decisions, led by Promotion & Tenure – Innovation & Entrepreneurship (PTIE), has 74 institutions in its coalition.	The University of California Board of Regents Working Group on Innovation Transfer and Entrepreneurship recommended a policy in 2021 specifying that faculty promotion and tenure guidelines should recognize innovation and entrepreneurship achievements alongside other criteria. Universities within the system cite PTIE's recommendations and track innovation and entrepreneurship activities for promotion and tenure consideration.

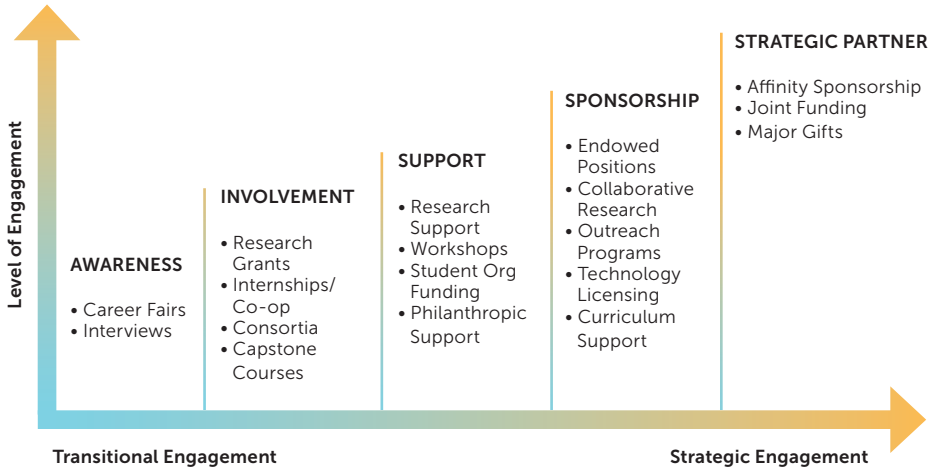
development of a system to cultivate better collaboration between its businesses and its institutions of higher education. New Jersey's economy will benefit from increased and integrated coordination between public and private research." The merger laid the foundation for what would become Rutgers Health, an integrated academic health enterprise that combines education, research, patient care, and community engagement. This collaboration ushered in rapid expansion in medical and life sciences research capacity.

The Rutgers research enterprise has grown by 40% in sponsored awards since 2020, and an institutional focus on translation and problem-solving has fueled even greater impact. The novel research core services policy has made the more than 30 Rutgers core facilities easily accessible to industry start-ups on a fee-for-service basis. A unified patent policy earmarks 5% of technology transfer proceeds for a sustainable gap-funding program that provides industry-partner-reviewed grants to help faculty successfully navigate the earliest and most challenging stages of start-up establishment. Rutgers also began to include patent and start-up information in its tenure and promotion materials, providing further support to this vital mission.

Beyond incentivizing such activities through promotion and tenure, providing the freedom for faculty to split their time between academic and private industry endeavors is another retention incentive that can also significantly deepen university-industry engagement. The University of Washington Paul G. Allen School of Computer Science & Engineering created policies and procedures permitting faculty to spend nearly half their time pursuing work in industry—sometimes working for a company like Google or Meta under long-term arrangements, or sometimes forming companies of their own. The practice

was explored in a 2019 white paper and has since been adopted by other universities following its broad dissemination in a UIDP guide. The Massachusetts Institute of Technology pioneered concierge corporate engagement and is widely known for its mature alliance network. Stanford University originated the concept of research parks, tying faculty expertise to the innovation ecosystem that evolved into Silicon Valley. North Carolina State University boasts a strong program at its Centennial Campus, where more than 70 companies are currently located, and Georgia Tech similarly expanded its industry engagement funding via the Georgia Tech Research Institute and Tech Square development. (See Table 1 for more examples.)

Figure 1. **UIDP PARTNERSHIP CONTINUUM**



The UIDP Partnership Continuum illustrates how academia and industry interact across the spectrum of partnership modes. It represents progressive levels of engagement, from transactional activities to those requiring greater collaboration between the parties and ultimately to holistic engagement.

Industry-engaged universities outside the United States share these characteristics. In the United Kingdom, Cambridge University has long used industry-engagement levers to partner with industry, shaping a long-term, industry-friendly, intentional partnership strategy that often involves government funding as well. In July 2026, the University of Cambridge convened a summit, coinciding with King Charles's opening of the £58 million New Whittle Laboratory, to showcase its laboratories and research strengths. The new facility positions Cambridge to attract additional investment and deepen partnerships with companies such as Boeing, Mitsubishi Heavy Industries, Rolls-Royce, and Siemens Energy.

Unlike in US universities, Cambridge faculty are free to commercialize their intellectual property (IP) independently, and Cambridge Enterprise provides revenue-sharing for faculty who choose to pursue commercialization support through its office. But commercialization activities that involve IP management and technology licensing are not a high priority in long-term, relationship-led university-industry engagements. Companies tend to see university engagement as holistic. Far more valuable to them than patents or invention disclosures is building relationships—institutional and interpersonal—leading to the dynamic exchange of talent, knowledge, and ideas.

Partnership is not just about research

As these examples show, companies and universities engage with each other in myriad ways. For universities, as engagement grows, partnership value may accrue far beyond direct research funding: through gifts, campus sponsorships, mentorship, experiential learning opportunities, endowments, major government research funding collaborations, applied research centers, and more (see Figure 1).

Industry-engaged universities understand companies' desire to make connections across campus centers and departments to deepen partnerships. For example, when bringing a strategic partner to campus, corporate engagement professionals at The University of Texas at Austin provide such partners with a comprehensive view of the company's engagement with the campus to illustrate the breadth and depth of the relationship, from workforce to research and philanthropic gifts, which can serve as a basis for conversations about further engagement. This comprehensive view also recognizes that a great corporate partner may never sponsor faculty research, but may enrich the lives and careers of dozens of students through capstone projects, curriculum co-development, or other activities.

Universities cannot simply declare themselves open for business. They must make collaboration straightforward, valuable, and worth sustaining for company partners. The universities that attract sustained industry investment are those willing to change how they operate, not merely how they market themselves.

Anthony M. Boccanfuso *has served since 2007 as chief executive of the University-Industry Demonstration Partnership (UIDP), a global membership association focused on strengthening multisector partnerships.*