

PERSPECTIVE



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The gains being made—and yet to be made—by technology in 21st century medicine are incalculable. Each day we get closer to a tipping point where the disruption caused by exponential progress chips away at the hegemony of academic

health centers in their missions of education, research, and patient care. In my view, it has never been more important for academic health centers to recognize the value of collaborating with the private sector. In this issue of *Leadership Perspectives*, three academic health center leaders describe their approaches to working synergistically with the technology sector.

Michael E. Cain, MD, Vice President for Health Sciences and Dean at the University at Buffalo, notes that industry is more likely to “come to us” than 15 years ago. He cites the example of the Center for Protein Therapeutics as an important consortia model. Significantly, he points out the importance of alignment between faculty research interests and industry’s manufacturing interests in order to create a thriving collaboration.

Signaling the value of working with the technology sector is vitally important, according to Julie A. Freischlag, MD, Vice Chancellor for Human Health Sciences, University of California, Davis. She notes the importance of finding partnerships that are aligned with the institution’s mission and of the need to recognize—and take appropriate steps—when the partnership does not appear to be a good fit. She comments that these partnerships can prove invaluable in the pursuit of new research directions.

Jonathan Weber, MD, Vice Dean of the Faculty of Medicine (Research), Imperial College London, describes the benefits gained from a specific partnership arrangement that had multiple benefits throughout the institution, including sparking new research pathways and developing a new PhD program. He concludes that creating a bridge across disciplines was essential to its success.

In my visits to various institutions over the years, I’ve seen mixed levels of interest in academic-private sector partnerships. But the tide is turning: leaders are increasingly understanding their benefits while recognizing the risks of not engaging. It is no coincidence that the AAHC Annual Meeting this year, about the time of this publication, has the theme *Academic Health Centers and the Private Sector* and includes speakers from major companies and tech start-ups addressing their plans and highlighting potential synergies with our member institutions. Collaboration, it seems, is the new form of competition.

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LEADERSHIP PERSPECTIVES

Partnering with the Technology Sector



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At the University of Buffalo, the Center for Protein Therapeutics engages a consortium of global pharmaceutical companies in partnership with faculty to advance critically important research. This consortia model works well in many ways: industry partners get access to the latest research, faculty expertise, and sophisticated instrumentation; faculty benefit from opportunities to work on cutting-edge problems with industry; and, society benefits from good ideas brought to market.

One criteria for success is the importance of alignment between our faculty research interests and industry's manufacturing interests, so that both sides benefit from the collaboration synergistically. Progress can be impeded when a company monopolizes our capacity with only short-term gain in mind, or when a faculty member is interested more in blue-sky research than practical applications. We look for the common ground between such extremes. That often requires that all parties need to give a little in terms of their goals and how they think a given project should unfold. It is critical to help both faculty and industry focus on a common, ideal notion that by working together they advance the public good.

Our office of economic development is intrinsically linked to the partnerships in which we engage. To assist faculty member research, the office helps with managing patents, license agreements, and compliance with government regulations. The office also works to show the private sector, particularly smaller businesses, how they can leverage faculty expertise here and help develop jobs in the local economy.

Today, industry is more likely to come to us than 15 years ago. We speak their language and understand their time constraints and the complexities of the business world. In part, that has to do with an intentional effort to change the culture here. For example, where once we may have held out for every last dime of potential economic gain from intellectual property, now we focus instead on how we can actually get ideas developed and into the field in ways that can benefit society. Those kinds of changes in our thinking have had two significant results:

they have brought more industry partners to our door, and they have encouraged faculty to engage more readily in the opportunities that partnerships have to offer.

I would like to especially acknowledge Venu Govindaraju, PhD, vice president for research & economic development at the University at Buffalo, for his work here and for his contribution to this commentary.



“ It is critical to help both faculty and industry focus on a common, ideal notion that by working together they advance the public good. ”

Julie A. Freischlag, MD // Vice Chancellor for Human Health Sciences,
Dean of the School of Medicine, University of California, Davis

In working with the technology sector, it is vitally important for leadership to demonstrate the value they place in partnerships both through their actions and words. We employ a venture capitalist group to help stimulate development of partnerships and encourage faculty to recognize when their work has the potential to lead to a patent or formation of a company.

Examples of our partnerships include Dr. Michael A. Rogowski's work with SAGE Therapeutics, which is bringing to market a treatment Dr. Rogowski pioneered to help adults and children with status epilepticus. A specific benefit of this relationship is the focused research attention on epilepsy. We are also collaborating with TIATROS to develop an electronic platform where patients undergoing cancer treatment can coordinate and organize their care.

In developing partnerships with the technology sector, our strategy has been to ensure that the goals of our partners align with our mission and to offer strong technical support to participating faculty members. Our technology management and corporate relations unit works very closely with faculty, especially in their first partnership experiences, to help with the intricacies of complicated processes involving patent applications, licenses, and intellectual property.

As stewards of the public trust, we must also be careful to closely monitor the development and implementation of our partnerships, ensuring that our interests are maintained and that our investigator engagement is fruitful. It is important that we make sure that the pace and tenor of a partnership effort is consistent with our objectives, our values, and our mission. It is also important for leadership to take an active role with an investigator in deciding if the pursuit of a partnership is more appropriate under the university umbrella or outside institutional parameters.

Academic health centers must find new ways to achieve their goals. Partnerships are one way to do that. Often they prove invaluable in helping us pursue new research initiatives. They can connect with resources that help us accomplish our goals and match patient needs with potential solutions to improve health and wellbeing. For these reasons, partnerships with the technology sector are truly win-win.



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Jonathan Weber, MB, PhD // Vice Dean of the Faculty of Medicine
(Research), Director, Imperial Academic Health Science Centre, Director of
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We have had extraordinarily productive and mutually beneficial partnerships with the technology sector and have found that a key requisite for success is that partnerships of this nature require champions—individuals who bring the vision and energy necessary to both initiate the endeavor and sustain it over time.

For example, our five-year relationship with the Waters Corporation—a US-based instrument manufacturing company—started with its connection to a single scientist, Professor Jeremy Nicholson, a chemist at Imperial who worked with clinicians to bring chemistry closer to the bedside. Dr. Nicholson's group developed a novel technology that connects an electrosurgical knife to a mass spectrometer, enabling real-time analysis of the chemicals in biological tissue during surgery.

Truly groundbreaking in and of itself, development of this technology produced notable results from the standpoint of the partnership between Waters and Imperial. This was an exciting development for Waters in that no one had ever put a mass spectrometer in the operating theater before, and doing so opened new research avenues and potential markets for the company to pursue. At the same time, the effort sparked new research pathways for the Imperial Academic Health Science Centre to explore ways in which the new technology might be applied to healthcare for patient benefit.

A related benefit was that the partnership helped generate development of a new PhD program focused on the identification, interpretation, and visualization of chemical and metabolic data. In essence, therefore, this strategic relationship resulted in the creation of new training opportunities for the next generation of scientists.

Among other lessons gained, our industry partner, Waters, came to recognize that its business might not be limited to instrumentation, but rather could expand also into diagnostics. Moreover, given that Waters has a manufacturing plant in the north of England, one can make the case that this partnership has the potential to create a wealth benefit as well as a health benefit, in terms of potential financial investment within the UK.

A critical dimension in the success of the partnership was Professor Nicholson's deep interest in working at a technical level with industry while simultaneously engaging with clinicians to address clinical problems. Creating that bridge across disciplines was essential in this partnership's success.



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