

A New Relationship Between Business and Academia

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I am indeed grateful for the opportunity to speak with you today about how we might build a new kind of relationship between business and academia to the benefit of our nation. Frankly, the connections between RIT and the business sector are as strong as any I have seen between business and academia, so it is not from a concern about the current state of this relationship at my own institution that I speak on this topic, though there is always room for improvement.

There are other, however, more ominous, developments on the national and local scenes that are driving these remarks today. In our lifetimes, we have seen global competition force the virtual elimination of the kind of jobs in this country that once allowed hard-working individuals to support their families even if they did not have a college degree. Nowhere is this change more evident than in Rochester and other “rust-belt cities”, where thousands of well-paying manufacturing jobs have been lost to global competition over the past three decades.

Individual success in America, therefore, increasingly means being able to contribute to a knowledge economy, and the earning of at least an undergraduate degree is becoming more and more a requirement for meaningful, and gainful, employment here. At the same time, demographic shifts in our population have resulted in an increasing percentage of college-age men and women from groups that have not historically gone to college in great numbers. Here, two specific examples will suffice to make the point. First, in 2002 there were more African-American men in prison than there were in college. Second, by the year 2020, there will be 50 million Latino/Latina Americans in the U.S., and the college-going rate of this population is less than 10% - the lowest of any of our ethnic minority groups. Clearly, reversing these two trends must be among our highest priorities if we are to have the workforce we will need to sustain our economy in the future.

Nevertheless, until the last couple of months, to this point in our history America’s economy has remained strong and our standard of living, for most Americans, has remained high. This has been largely a result of our country’s decades of leadership in science and technology, and the new products, services, and businesses that have resulted from leading-edge research and development. This kind of work, of course, requires even higher levels of education, and if we

are to continue to be international leaders in science and technology innovation, the aforementioned demographic challenges for those of us in higher education will be even greater. But even if we can meet these challenges, the chances for America to continue to hold the leadership position in new product and service development do not appear promising. Global competition has forced the elimination of all but the shortest term research and development programs in the private sector, and our corporate laboratories, once a remarkable catalyst for economic development in the U.S., have all but vanished. RCA Labs, for example, no longer exists, and Bell Labs is a shadow of its former self. At the same time, our corporate competitors overseas, taking advantage of lower labor costs in many cases, have actually increased their research and development efforts to the point where many are now superior in quality and productivity to our own.

Do we have any national assets that we could bring to bear on this problem? Well, our institutions of higher education in the U.S. are still without question the finest in the world, and they possess, in the aggregate, a reservoir of intellectual talent and creativity unmatched anywhere else. RIT, moreover, was founded to meet corporate needs and the University counts among its faculty and staff an unusually rich mixture of scholars and practitioners. That combination makes our institution ideally suited to meet the needs of industry for new technologies and new ideas for businesses, products, and services. Graduate students are still the most cost-effective R&D labor force anywhere, and $\frac{3}{4}$ of faculty salaries are typically paid by our colleges and universities for instructional services, thereby significantly reducing the costs of adding their intellectual firepower to corporate R&D projects. In addition, institutions like RIT have laboratory assets that would be prohibitively expensive for most companies to reproduce.

So why haven't U.S. corporations adopted institutions like RIT as their corporate R&D centers? Why aren't more technology-based companies incubating their new product concepts at universities? How could the U.S. (that's us, folks), be so inept that we can't find a way to exploit this obvious "unfair advantage" over foreign competitors?

Well, it will be interesting to hear your perspective, but I think both academia and the corporate sector are to blame. On the academic side, I see several areas in which a new approach is needed:

1. The "Gatorade factor" – A very small number of colleges and universities have reaped financial windfalls via intellectual property developed by their faculty, and this dream of significant financial return

has led U.S. colleges and universities to demand intellectual property rights and subsequent royalty payments from the corporate sector with such vigor that many collaborative projects are terminated by the lawyers before they even begin. University faculty and administrators typically have no idea of what it takes to move an idea to the point where it can be turned into a new product or service for which there is commercial demand, and this naiveté makes negotiations with academia over IP and royalty issues an exercise in frustration for many companies. It is time, I think, for U.S. colleges and universities to remember that they are tax-exempt, non-profit organizations whose primary role is to serve society, not to make money.

2. The “give us the money and we’ll work on something related to your interest” factor – university faculty are usually looking for support for their own ideas, not yours, and that causes many corporate executives to wonder what it is they are funding.
3. The “fund me for three years and I’ll give you a progress report” factor – Academic timescales are typically much longer than corporations can tolerate, especially when they are under competitive pressure from abroad. Companies are not in business to fund Ph.D. dissertations. They have specific questions that need answers and they need them in a timescale of a year or less.

On the corporate side, there are also a few negative factors at work:

1. The “next quarter’s bottom line” factor – it’s amazing to me to still hear people question Toyota’s multi-year, billion dollar commitment to hybrid vehicle development, a commitment U.S. auto companies were unwilling to make because of the long lead-time that was necessary before any profits could be realized. This was a technology, by the way, that was created in the U.S.
2. The “we’ll buy any new technology we need” factor – corporate acquisitions and mergers are consuming untold billions in legal costs without adding any really new intellectual assets to the U.S. inventory. These funds could be used to fund technology R&D to help maintain a position of technological leadership for the U.S. economy.

3. The “we won’t pay overhead” factor – many companies who have internal overhead rates of over 100% on internal corporate R&D projects refuse to acknowledge the very real costs that universities must bear to support research and development projects and balk at paying overhead rates at academic institutions that are typically 50% or less.

So we’re both to blame. How do we move forward? How do we exploit our unfair advantage and make the U.S. once again the pre-eminent center of research and innovation?

Well, imagine, if you will, a university with close ties to the corporate sector (sound familiar?) that decides to make its faculty and staff, graduate and undergraduate students, and facilities available to companies to carry out short and medium term corporate research and development projects at low cost and without the usual intellectual property fights that usually derail such efforts. Imagine a “Corporate R&D at RIT” program in which companies discover that they can once again afford to do new product research and development, while identifying future employees at the same time.

As a conversation starter, suppose we at RIT were to solicit company-proposed R&D projects of approximately a year’s duration and match them up with qualified faculty and students. One or more master’s students, under the supervision of a RIT faculty member and a corporate representative, would be assigned to work on the projects as thesis projects. Faculty and students who sign up for such projects would therefore have a real interest in the problem, and the ongoing interaction between the faculty, students, and corporate representatives would be of benefit to all three groups. Suppose, in addition, that we at RIT accept a modest up-front payment, to be shared by the students, faculty, and the institution, and give up all IP rights associated with the work to the sponsoring company.

Such a program assumes that the university does not already own significant intellectual property in the area of the participating company’s interests. If previous work by university faculty and students has resulted in university-owned patents or copyrighted work prior to the agreement with the corporation, a more traditional licensing agreement could cover that part of the work and any new intellectual property generated could be covered by the template agreement.

A program like this also needs to provide for publication of the results of the work after an appropriate delay to allow the company to obtain patent and/or

copyright protection, and should reaffirm the existing right of faculty and students to continue to perform research in the area under study after completion of the project.

Finally, the program must be entirely voluntary for all parties, including faculty and students.

Well, over the past year, we have put together such a program at RIT. We call it “Corporate R&D at RIT”. As part of this process, we have developed a template agreement that we believe will ensure that both partners feel like winners as the projects are initiated and taken to completion. For those of you who are interested, I have brought a few brochures describing the program with me tonight. We have already signed up a number of major companies to the program. These companies include Paetec, Harris RF, National Semiconductor, and Ortho-Clinical Diagnostics, among others.

Clearly, such arrangements would benefit both industry and academia. Although it is probably not a good thing in general to have the private sector dictate the intellectual directions that our colleges and universities take, much university research undertaken today is of a very basic nature and there are benefits to be gained by connecting more of this activity with real world needs. If universities and colleges are to become the economic engines in their communities that they aspire to be, then their research and development activities need to be focused, at least in part, on projects that have the potential to lead to new products and services.

As leaders in industry and academia, one of our obligations is to get out of the way of good people who want to work together. I hope that all of you will embrace a new dialog on how we can work together more effectively. Thanks very much for the opportunity to speak with you today.