

Rescuing Rochester?

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Let me begin by saying that I'm not sure that Rochester needs rescuing. Our community has responded to the downsizing of some of our most significant corporate enterprises in very creative ways, and the jobs lost as a part of that unfortunate process have been replaced more than one-for-one with jobs in new and emerging enterprises in our region. Nevertheless, I am grateful for the opportunity to speak to you today, for I believe that our very economic future may well depend on how effectively we utilize our institutions of higher education as an economic engine for our region, for New York State, and for our nation. Of course, colleges and universities have always turned out educated workers for the public and private sectors, and RIT is an extraordinary contributor in that area. RIT now enrolls more than 16,000 students, and unlike many other colleges and universities, almost all of our graduates end up in industry. In fact, 30,000 RIT alumni live in the greater Rochester area. Each year, moreover, RIT sends almost 3,500 students, including some 1,500 in the greater Rochester area, into our communities to work with companies as Co-op employees, and in that sense our local companies play as real a role in the education of our students as do our faculty. RIT was, of course, established in response to local corporate needs for skilled employees, and the strong career-orientation of our programs remains a defining characteristic of the Institution. And today, perhaps most remarkably, RIT is one of the largest producers of baccalaureate degrees in STEM (science, technology, engineering, and mathematics) disciplines in the nation.

Institutions like RIT and the University of Rochester are also significant economic enterprises in their own right. The University of Rochester is the region's largest employer, and together with RIT, these two universities contribute almost \$3B annually to the regional

economy. They are also among our fastest growing enterprises, and their growth spurs economic development in many different sectors. For example, RIT has current capital construction projects underway or in the planning stages totaling more than \$200M.

But there are other, more ominous, developments on the national and local scenes that make more effective utilization of our colleges and universities in the economic development arena more important than ever before. 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, 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 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.

Underscoring these demographic challenges is the problematic state of K-12 education in the U.S. In our Rochester City School District, despite expenditures of approximately \$19,000 annually on each student (about the same as the average tuition collected from RIT students and their families), high school graduation rates are only about

40%, a figure that cannot begin to support our economic aspirations for the region. We at RIT currently enroll about 300 students from the Rochester City Schools and provide some \$4M in financial aid to them annually, but we could, and would, do more if there were more qualified high school graduates coming out of our city schools.

Nevertheless, 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. But here, also, the trends 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. 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.

Does America still possess any significant competitive advantages that we can exploit to both sustain and advance the quality of life here? I think the answer to this question is a resounding yes, and happily, RIT and other Rochester-area colleges and universities are well positioned to take a leading role in these efforts. 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. Many of these institutions, moreover, count among their faculty and staff both scholars and practitioners, and that combination makes them ideally suited to meet the needs of industry for new technologies and new ideas for businesses, products, and services. The assets that RIT possesses in the area of sustainable manufacturing and production, and the assets that the University of Rochester brings to the table in the area of translational biomedical science and technology,

are clear examples of the potential of our local colleges and universities to be real economic engines within our community.

There is a second advantage that we in the U.S. have over our global competitors, and that is the innate desire of most young Americans to walk their own path. Here a single example will suffice to make my point. A few years back, when I was a dean of engineering, I took a group of Japanese educators to see our Freshman engineering students working on their first engineering project – in this case a human powered water pump for use for irrigation in third-world countries. When we entered the large assembly room in which the students were building their projects, I saw my visitors' jaws drop, and one turned to me and said, "In Japan, they would all be the same." In this case, of course, they were not all the same, and in some cases one might argue that our students had gone to unreasonable lengths to assure that their solutions were different from their classmates. This inherent American desire to be different can be a powerful force for innovation and creativity if we have the good sense to encourage and develop it in constructive directions. Here again, our colleges and universities are well positioned to take a leadership role in the development of these next-generation inventors and entrepreneurs, especially if their faculty and staff have experience in working with the private sector and with moving ideas into actual value-added products and services.

Imagine if you will, therefore, colleges and universities that not only educate their students for productive careers, but reinforce America's greatest competitive advantages by expecting creativity, invention, and innovation of every student before graduation. Imagine higher education institutions that teach scientists and engineers how artists envision and create new works. Imagine universities that use America's growing diversity as a creative engine in this process.

Imagine, if you will, universities and colleges that decide to make their 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 new collaborative paradigm between academia and the corporate sector in which hundreds of companies discover that they can once again afford to do new product research and development, while identifying future employees at the same time.

Imagine, if you will, universities and colleges who construct specially equipped dormitory facilities for undergraduate and graduate students who want to start their own businesses while in college. Living together in corporate “teams”, these students could gain valuable experience and mentoring while putting together business plans and prototypes of new products and services.

Imagine, if you will, universities that work on a global scale such that their students have built-in opportunities for study-abroad experiences or corporate internships as they prepare for careers on an increasingly flat world.

Imagine, if you will, universities and colleges in which complex social problems are not attacked by individuals working in disciplinary silos, but rather by teams of students and faculty from all disciplines who, from the outset, benefit from the ideas and contributions of those from very different perspectives. Imagine Rochester being the home of the first “Team PhD” programs. Imagine how exciting that would be and how much fun it would be to shake up the world of higher education with these ideas and others.

There is nothing impossible, or even especially difficult, about these ideas. In fact, RIT is moving forward on all of them. We are constructing a student innovation center and making changes to our curricula to provide opportunities for all of our students to experience the wonder of participating on a truly innovative project. We have already established a “Corporate R&D at RIT” program which has received national attention. We will start construction on an

undergraduate “entrepreneur’s house” this year, and we now operate internationally in Kosovo, in Croatia, in the Dominican Republic, and, this Fall, in Dubai. Finally, we are exploring ways to bring students and faculty together to work on complex problems across the traditional disciplinary boundaries first as part of our university honors program, but eventually as part of the learning experience for all RIT students. Let’s get on with it. Our future economic prosperity may well depend on our success in exploiting one of our last competitive advantages – the innovative employees in America’s companies and the extraordinary research and development assets at our colleges and universities.

And just to put an exclamation point on all of this, come to “Imagine RIT”, our innovation and creativity festival to be held on May 3. I’ll close with a brief, and unapologetic, commercial for the festival.