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# Partner or Perish – Universities as Agents of Change

**Mary Sue Coleman**

**President, University of Michigan**

I want to begin by telling you about a University of Michigan graduate student named Mike Crowley.

Before deciding to enroll in our highly ranked MBA program, Mike had a short list of top business schools that interested him. More important to him than the business schools were the various universities' technology transfer offices. Mike is an entrepreneur, and he knew that as an MBA student he would be looking for a fledging technology on campus that he could help spin off into a viable business. He wanted to have the right tools at his disposal when the time came.

He selected Michigan because of the entrepreneurial spirit of the Tech Transfer Office and one of its programs we call TechStart, which matches graduate students in fields like business, engineering, law and the sciences with University faculty hoping to commercialize their work. It is a great formula for accelerating a business startup.

Mike founded his spin-off company, a firm called Incept Biosystems, which has created a device that dramatically improves embryo quality and developmental rates during *in vitro* fertilization. Incept uses a technology developed by U-M professors and students in biomedical engineering, obstetrics and gynecology.

They have secured more than \$5 million in venture funding and start-up grants, and they are using the expertise of Mike Crowley—now their president and chief operating officer—to make their technology commercially viable.

We're extremely proud of the Ross School of Business at Michigan and the fact that Mike selected us for his graduate education. But his decision to come to Michigan

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really speaks to the role that tech transfer, entrepreneurship, and a culture of collaboration can, and must, play for all of our universities.

Whether our federal funding grows or contracts, universities must look to every potential partner—from eager graduate students to cautious venture capitalists—to help grow and exploit our research and development.

Universities are places of deep exploration and bold experimentation. At last count, university researchers in this country were filing invention disclosures at a rate of two an hour, every day of every week.<sup>1</sup> Great ideas are born on our campuses: Hewlett-Packard was born at a university, as was the artificial heart, the polio vaccine and synthetic penicillin, and, yes, Google.

Collaboration is our future. Academe is known for saying, "Publish or perish." I say, "Partner or perish."

We must now turn to each other, and to potential partners at other universities, in the corporate world, and among the public, and say, "Let's find a way to make this happen."

We must be more nimble, more responsive, and more focused, without losing sight of our core mission to freely discover new knowledge and to share it widely with the world.

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Today's challenges are incredibly complex, and require the creativity and expertise of many great minds. That's how we have to approach research and development today, because the problems we need to solve are often too complicated to be explained by a lone scientist in a solitary lab.

As universities, we have three great partners standing across the room from us. We just need to ask them to the dance.

## **Partnering Within the Academy**

The first partner is our fellow university. Universities and colleges take great pride in their accomplishments, whether in the laboratory or on the athletic field. Nowhere is that stronger than at the University of Michigan, where we lay claim to being the number one university with federal funding, and where we have a football program with the most devoted of fans.

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<sup>1</sup> Association of University Technology Managers FY2005 U.S. Licensing Survey: Colleges and universities filed 17,382 invention disclosures in 2005.

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But we know we can be a stronger player if we team up with the other research universities in our state. Working with Michigan State University and Wayne State University, we have formed the University Research Corridor (URC) to leverage our assets and lead our state out of its longest economic slump since the Great Depression.

This is a new venture for us, and as partners our collective numbers are impressive. Among our state's 15 public universities, we educate 40 percent of students. We produce 100 percent of the state's doctors, 100 percent of our veterinarians, and nearly half of all science and engineering graduates.

Of all the external R&D dollars that come into the state of Michigan, our three universities bring in *95 percent*. And together we expend well over \$1.3 billion in research activity.

That R&D translates into a large and growing base of university-based tech transfer and new business development. In the past five years, the URC received 632 patents and accounted for 79 start-up companies—effectively creating at least one new business every month.

Last month, the University Research Corridor presidents testified jointly before the state Senate committee that appropriates money for higher education. One senator looked at us and said, “When you three come together, you’re quite formidable.”

That’s the idea: To join forces and leverage our resources, with the dual goals of creating new knowledge and creating new jobs.

The URC will take time. I was at the University of North Carolina in the 1960s when the textile industry was evaporating and the Research Triangle was just getting off the ground. Today, no one will argue about the decision by UNC, Duke and North Carolina State to build upon their combined research assets.

Michigan, Michigan State and Wayne State will continue to compete, whether for the best students or the finest faculty. Yet as the University Research Corridor, we also will collaborate, because we have much more to gain with our R&D dollars if we partner for our state’s future. In fact, I believe the University Research Corridor will enhance the reputation and work of all 15 of Michigan’s public universities because of the activity it generates.

### **Strengthening Industry Ties**

The second partner that higher education needs to better court is industry.

A century ago, industries grew up around natural resources such as water, timber and minerals. In the 21<sup>st</sup> century, industry wants to be near intellectual resources—the faculty, graduates and spin-offs of research universities. Experts across the country

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agree that major research universities are necessary to spark growth in “meta-region” economies such as the Great Lakes region.

The state of Michigan is, of course, home to the auto industry. Our heritage is in manufacturing, and we are proud of our contributions to the American and world economies because of the vehicles and spin-off technologies we design and build through our peerless manufacturing base.

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But we are undergoing a dramatic transformation in our state. No longer can children grow up knowing that a well-paying job, with lifelong benefits, awaits them at the local assembly plant. No longer do mid-level managers plan careers with, and devote loyalties to, one company. And no longer do executives fret only about next year’s models, but also the next decade’s health care and pension costs.

Our state is being forced to reinvent its economy, moving from its historical strengths in manufacturing, to one built on innovation and knowledge. And that is where our universities must step forward, because we are the innovation engine of the nation.

Just last month, *Expansion Management* magazine named Ann Arbor the top metro region in the country for what it calls knowledge workers—people who are the foundation of our new economy. The magazine’s editors said that the communities that will thrive in America are those with the presence of a major research university. Indeed, this has been the experience in states such as California, Massachusetts, Washington and New York.

At Michigan, roughly 5 percent of our \$800 million research budget comes from industry. If we worked extremely hard to ramp up our industry collaborations and, say, doubled our activity, that funding still would amount to only 10 percent of our research budget.

But we cannot treat industry as a minor player. It has much to offer, and provides us with interesting problems to be found nowhere else. And to be part of, and even to lead, the economic transformation of our region, we must help the new industrial sector to emerge from our laboratories and our faculty.

I am not naïve about the chasm between the cultures of higher education and industry. We have different missions and different ways of going about our work: they focus on the bottom line, and we have lines that go in all directions.

But with the proper policies in place, and a campus culture that encourages and rewards industry collaborations, we have much to gain by working with corporations.

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That campus culture must include a clear statement of interest in such partnerships from the university's leaders, and a real understanding on both sides what the interests are—and are not.

Late last year, amidst the daily news from Detroit about the ever-shrinking domestic auto industry, a story from Ann Arbor made headlines. The Internet giant Google would be creating 1,000 jobs and a corporate office in Ann Arbor.

Google said it wanted access to an educated workforce, and we provided it. We also provide Google and its new employees with one of those intangible spin-offs of university life: a high, vibrant quality of life.

Ann Arbor is consistently placed on the lists of best places to live, best places to retire, lowest stress city, best place to raise a family, and so on. That we have attracted a major corporation accustomed to the trappings of Silicon Valley speaks well to the power of university communities, particularly those in the Midwest, to fuel much-needed economic development and industry partnerships.

As a university, we cannot work in isolation when finding these partners. In fact, I advocate being proactive, because it will lead to new relationships.

Two years ago, the University of Michigan helped create and fund a community economic development agency that already is making a huge impact in our city and county.

Ann Arbor SPARK, as it is known, was founded by a host of institutions, led by the U-M and including county government, local banks, the Michigan Economic Development Corporation, Eastern Michigan University, Washtenaw Community College and others.

SPARK got its first real test earlier this year, when Pfizer Corporation stunned us with the announcement it was closing its R&D headquarters in Ann Arbor and eliminating 2,100 jobs. Outside of U-M, Pfizer is our community's largest employer, so this initially seemed like a major blow.

But within hours of the Pfizer announcement, leaders from throughout our community and state, including the governor, gathered in Ann Arbor to say: We will work together to overcome this loss. Led by SPARK, we have since formed several teams focused on issues such as redeveloping the Pfizer site, creating new jobs for displaced employees, and identifying new funding for area non-profit agencies at risk because of a drop in charitable giving by Pfizer.

Our community has some difficult days ahead of it because of the Pfizer pullout. Yet I also believe we are looking at a once-in-a-generation opportunity for our community and our state. The opportunity is only ours to lose by inaction—and we are

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very active. As a university, we can look at the void left by Pfizer as an opening for broadening our entrepreneurial base and drawing more technologies out from the university. I really don't see how we—as a university ready to take the lead and work with industry—can lose.

### **Building Public Ties**

Finally, higher education has a third critical relationship that we must improve upon, and that is our partnership with the public.

We simply must do a better job of explaining the impact of our vast research enterprise and its many benefits to society.

Some 160 years ago, when the University of Michigan was beginning to establish itself as an institution, a group of prominent businessmen from Detroit approached U-M President Henry Tappan, who was our first president. These business leaders said they wanted to help the university in any way they could and asked what President Tappan needed to succeed.

Henry Tappan said the University could make a name for itself in the sciences if it had an observatory. The businessmen already knew that astronomy played a critical role in accurate timekeeping, which would help control navigation on the Detroit River.

In no time flat, the businessmen raised the requisite funds and a spectacular observatory with two telescopes was constructed on the outskirts of our campus. The U-M was able to establish itself in the sciences, and the Detroit businessmen benefited because shipping on the Detroit River ran like clockwork.

Contrast that public-private partnership with some feedback from just a few months ago. I've told you about our hopes for the University Research Corridor. The Detroit Free Press published a detailed article—on the front page of the Sunday paper—about many of the impressive research discoveries and business spin-offs that have come from Michigan, Michigan State and Wayne State. We couldn't have asked for a more positive story about the combined contributions of our three institutions.

The feedback from readers? Let me quote from the paper's online message board.

“Sure they bring in most of the research dollars since they do most of the research. Guess what? That goes to the professors and schools. How does that help the state?”

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Somewhere along the line, the goodwill that came with the observatory has turned into suspicion and cynicism about just what we are doing in academe.

The research universities of Michigan are our state's *best* hope for an economic turnaround. That has certainly been the case for many states throughout the country, and this resource is particularly important in the Midwest. Unlike a Pfizer, the University of Michigan is not going to close its doors and move to another state. And we continuously create new jobs—in our case, some 1,000 a year.

What better partner could a state ask for?

That's one reason why my fellow presidents at Michigan State and Wayne State and I have been meeting with newspaper editorial boards around the state. We're talking about our contribution to the public good and the tremendous support we provide for the state economy through our research, our medical care and our tech transfer.

We must educate the public about the promise of stem cells, the potential of nanotechnology, and the power of biomedical engineering, and their importance to our national and regional competitiveness and economic health. We must demonstrate the return on the public's investment if we expect to have the public's support and advocacy.

We are hearing a lot today about the federal budget and where it may or may not take us in the next year. Federal dollars are extremely critical to our institutions, and we must be vigilant in working with our elected leaders to fully support our overall research mission. We also must reinforce the work of our faculty with adequate bridge funding should those federal dollars evaporate.

Where we have the greatest control is in the actions of our institutions when it comes to finding willing partners in our work of research and development for tomorrow's world. That may mean engaging a graduate student, a corporate CEO, or the new start-up down the street. They all have a stake in our future.

And a better, stronger future is why universities exist. Our universities excel at creating solutions for tomorrow. By drawing upon our vast and unique strengths, and reaching outside our traditional academic comfort zones, we will continue to be the backbone of American research and innovation.