

AFTER THE FALL: A ROADMAP TO MICHIGAN'S FUTURE

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ENGINEERING SOCIETY OF DETROIT ADDRESS

October 22, 2009

INTRODUCTION

Ah, this place brings back memories, since Michigan always holds the end-of-season Michigan Football Bust here, where I used to attend to congratulate the team for beating Ohio State (...7 of the 8 times we played them during my presidency, I might add)

Oh, how things change.

But I guess the same can be said for our state.

Show Time Magazine

Actually, although the collapse of our economy and several of our most important companies seems to have happened very fast, in reality it has been a long-time coming...

A few datapoints:

1980s: While dean of engineering, I remember all too well a tour of the GM Technical Center when its leader boasted to us "We'll never be beaten as long as we can put a car on the showroom floor for fewer dollars per pound than anybody else..." Unfortunately the Japanese soon

demonstrated that the marketplace had stopped buying cars by the pound...

1990s: When we finally figured out the importance of lean manufacturing and quality, once again we became too satisfied and went back to playing golf. We completely ignored some other things going on in Michigan:

1980s: The teenage sons of a Michigan faculty member wrote this little program for their Apple II that was licensed to Adobe. It was called Photoshop!

1980s: A group of Michigan universities, along with IBM and MCI, built the "Internetwork", as we called it then. But it was completely ignored by the state, as has been its successor, Internet2.

1990s: One of our Michigan engineering students during the 1990s got really interested in our digital library projects. Perhaps you've heard of him: Larry Page. (He has returned to digitize out entire 8 million volume library, along with dozens of other major libraries around the world...)

2006: While meeting with a number of local entrepreneurs, their frustration finally boiled and one of them suggested that perhaps their only hope to keep from being trampled by Michigan's Neanderthal 20<sup>th</sup> century economy was the "dead cat bounce" that might occur if a major company like General Motors were to go bankrupt. Of course no one expected THAT to happen...

And so, let's fast forward to today, AFTER THE FALL...

FIRST: THE BAD NEWS

Today we find Michigan has fallen to the bottom of the nation in almost all of the key economic indicators:

- 50<sup>th</sup> in personal income growth
- 50<sup>th</sup> in unemployment rate
- 50<sup>th</sup> in employment growth (only state with a decline)
- 50<sup>th</sup> in index of economic momentum (population, personal income, employment)
- 50<sup>th</sup> in the support of higher education over the past decade
- Our largest city, Detroit, now ranks as the nation's poorest.
- We've already seen several of Michigan's companies, which served as the economic engines of the 20th century, pushed over the brink by the global economy.
- Our educational system is underachieving with one quarter of Michigan adults without a high school diploma and only one-third of high school graduates college-ready. Less than one-quarter of Michigan citizens have college degrees.
- Furthermore, the out-migration of young people in search of better jobs is the fourth most severe among the states.

- In fact, Michigan will be the only state in the 2010 census that will actually see a population drop.
- Lest you think Ann Arbor is an oasis, immune from the challenges of the flattening world, in February we learned that our largest employer, the huge Pfizer R&D center (the place that brought you Lipitor) was closed two years ago taking 2,400 high paying jobs with it!

And note that all of this happened BEFORE THE FALL—the collapse of the past year!!!

So what is happening. Let me quote from a report we produce every couple of years, The Michigan Roadmap, but talking to you engineer to engineer to deliver some “tough love” .

Michigan’s old factory-based manufacturing economy is dying, slowly but surely, putting at risk the welfare of millions of citizens in our state, in the face of withering competition from an emerging global economy driven by knowledge and innovation.

- From California to North Carolina, Dublin to Bangalore, other regions, states, and nations are shifting their public policies and investments to support the new imperatives of a knowledge economy such as knowledge creation (R&D, innovation, entrepreneurial activities), human capital (lifelong learning and advanced education, particularly in science and engineering), and infrastructure (colleges and universities, research laboratories, broadband networks).
- As Thomas Friedman puts it, “The world is flat! Globalization has collapsed time and distance and raised the notion that someone anywhere on earth can do your job, more cheaply. Can we rise to the challenge on this leveled playing field?”

So how is Michigan responding?

The usual stupid things like building more casinos and heavily subsidizing Hollywood movies.

Some well-intentioned but likely misdirected efforts like green energy jobs—which sounds to me like taking out-of-work auto workers and putting them into abandoned assembly plants to make windturbines, almost as if we are trying to rebuild the old 20<sup>th</sup> century manufacturing economy based on low-skill but highly compensated commodity manufacturing.

Honestly, folks, if we cannot be globally competitive in manufacturing products invented in Michigan—like Thunderbirds—how can we expect to be competitive in manufacturing products like wind turbines and solar technology developed by the aerospace industry and the electronics industry?

Again to quote from the Michigan Roadmap:

- In Michigan today there is a deafening silence about the implications of a global, knowledge-driven global economy for our state's future.
- There is little evidence of effective policies, new investments, or visionary leadership capable of reversing the downward spiral of Michigan's economy.
- For whatever reason, leaders in both Michigan's public and private sectors continue to cling tenaciously to past beliefs and practices, preoccupied with obsolete and largely irrelevant issues (e.g., the culture wars, entitlements, tax cuts or abatements, and gimmicks such as gambling and cool cities) rather than developing strategies, taking actions, and making

the necessary investments to achieve economic prosperity and social well-being in the new global economic order.

- Preoccupied with obsolete political battles, addicted to entitlements, and assuming that what worked before will work again, Michigan today is sailing blindly into a profoundly different future.
- Perhaps nowhere is this inability to read the writing on the wall more apparent than in our state's approach to the development of the human resources and new knowledge necessary to compete in a global, knowledge-driven economy. Michigan's strategies and policies with respect to advanced learning and knowledge production have been woefully inadequate, all too often political in character, and largely reflecting a state of denial about the imperatives of the emerging global economy.

We need to face reality: Michigan's greatest weakness is the quality of our workforce. We simply no longer have the level of education or skills to compete in a hyper competitive global economy driven primarily by knowledge—that is, educated people and their ideas.

- Our future will be determined, more than any other factor, by our investments in human capital. Yet what is the first thing that goes on the chopping block when the state gets into economic difficulty? Education!!! At all levels!!! K-12, college, graduate, R&D... the only things that really matter in a knowledge-driven economy.
- Michigan continues to eat its seed corn while pursuing a foolish and hopeless quest to bring back our obsolete entitlement economy .
- Today the Michigan motto has become "Eat dessert first; life is uncertain."

(I told you this would be tough love!!! )

SO, WHAT DO WE NEED TO DO?

Again return to Michigan Roadmap Redux

First, face several realities:

A vision for *tomorrow* can best be addressed by asking and answering three key questions:

1. *What skills and knowledge are necessary for individuals to thrive in a 21st century, global, knowledge-intensive society?*

Clearly a college education has become mandatory, probably at the bachelors level, and for many, at the graduate level.

Yet current surveys indicate that the majority of Michigan parents still think their kids can get good jobs with only a high school diploma. Actually, today, the lifetime earning capacity of folks without some college education won't even pay back the cost of their K-12 education, much less their Social Security or health care. (Perhaps these public attitudes are not surprising in a state where 55% of those surveyed don't believe they need to be inoculated for H1N1 pandemic.

2. *What skills and knowledge are necessary for a population (workforce) to provide regional advantage in such a competitive knowledge economy?*

Here it is important to stress that we are not just competing among ourselves prosperity or with other states such as California or Texas. More serious is the competition from the massive and increasingly well-educated workforces in emerging economies such as India, China, and Central Europe.

There are smart, hard-working, and increasingly well-educated folks all around the world all too willing to perform our current jobs for 20 cents on the dollar. (In engineering we call this the 5xME problem!)

3. *What level of new knowledge generation (e.g., R&D, innovation, entrepreneurial zeal) is necessary to sustain a 21st century knowledge economy, and how is this achieved?*

Here it is increasingly clear that the key to global competitiveness in regions aspiring to a high standard of living is innovation. And the keys to innovation are new knowledge, human capital, infrastructure, and forward-looking policies. Not only must a region match investments made by other states and nations in education, R&D, and infrastructure, but it must recognize the inevitability of new innovative, technology-driven industries replacing old obsolete and dying industries as a natural process of “creative destruction” (à la Schumpeter) that characterizes a hypercompetitive global economy.

#### HOW FAR DO WE HAVE TO GO?

*So how far does do we have to travel to achieve a knowledge economy competitive at the global level? What is the gap between Michigan of today and where it must be tomorrow?*

- This part of the roadmapping process doesn't require a rocket scientist (even though in the 1960s I once did research on nuclear-powered rockets!). One needs only acknowledge the hopelessness in the faces of the unemployed, or the backward glances of young people as they leave our states for better jobs, or the angst of students and parents facing yet another increase in college costs as state government once again cuts appropriations for higher education.

Yet there is some good news: We have the seeds for building a 21<sup>st</sup> century knowledge economy.

In Southeastern Michigan we have a world-class concentration of knowledge workers—engineers, managers, financiers, leaders—who

- Know how to design widgets, cars, roads, buildings, cities...
- They can figure out to make them
- They can build and managed global supply chains

- They can build factories in China, employing Chinese workers, that make widgets that Chinese will buy—and make money from it.

But the problem is that we also have several million people, trapped in a dying 20<sup>th</sup> century manufacturing economy, who generation after generation have had little incentive to increase their skill levels to world-class standards as long as Michigan embraced—and could afford—an entitlement culture.

Unfortunately, as these low skill high-pay jobs have disappeared to places like Juarez and Shanghai, Michigan's few remaining low skill jobs are also compensated at levels competitive in the global economy. Folks, that's the way the world works!

#### A ROADMAP TO THE FUTURE

So, what do we need to do? What is the *roadmap to Michigan's future*?

In a knowledge-intensive society, regional advantage in a highly competitive global marketplace is achieved through creating a highly educated and skilled workforce.

It requires an environment that stimulates creativity, innovation, and entrepreneurial behavior.

More generally, in an age of knowledge in a global economy, educated people, the knowledge they produce, and the innovation and entrepreneurial skills they possess have become the keys to economic prosperity, social-well being, and national security.

Moreover, education, knowledge, innovation, and entrepreneurial skills have also become the primary determinants of one's personal standard of living and quality of life.

Hence one could well make the case that democratic societies—and state and federal governments—must accept the responsibility to provide all of their citizens with the educational and training opportunities they need, throughout their lives, whenever, wherever, and however they need it, at high quality and at affordable prices.

Beyond a commitment to educational opportunity, there is another key to economic prosperity: technological innovation.

As the source of new products and services, innovation is directly responsible for the most dynamic sectors of the U.S. economy.

Here our nation has a great competitive advantage, since our society is based on a highly diverse population, democratic values, and free-market practices.

These factors provide an unusually fertile environment for technological innovation. However, history has also shown that significant public investment is necessary to produce the essential ingredients for innovation to flourish: in new knowledge (research), human capital (education), infrastructure (schools and colleges, facilities, laboratories, communications networks), and policies (tax, intellectual property).

Adequately supporting education and technological innovation is not just something we would like to do; it is something we have to do.

What is really at stake here is building our regional advantage, our ability to compete for prosperity, for quality of life, in an increasingly competitive world.

In a knowledge-intensive society, regional advantage is not achieved through tax cuts for the wealthy or using public dollars to prop up dying

industries. It is achieved through creating a highly educated and skilled workforce.

As Bill Gates warned, cutting-edge companies no longer make decisions to locate and expand based on tax policies and incentives.

Instead they base these decisions on a state's talent pool and culture for innovation—priorities apparently no longer valued by many of Michigan's leaders, at least when it comes to tax policy.

How can we rapidly build a knowledge economy in Michigan:

- 1) First, we have to stop eating our seed corn by making certain that the next generation has every opportunity to obtain the education and develop the skills to enable them to compete in the global economy.
- 2) Sure this will take some sacrifices. We need to reallocate resources within our education system—away from administration, bloated benefits, and fluff and into the classroom and laboratory. More generally we clearly need to restructure the way that Michigan generates and focuses the resources necessary to rebuild this state—which may require throwing the money-changers out of the temple—rather the lobbyists out of Lansing and replacing the current crop of do-nothing political leaders with some folks who care more about serving the state than their next election.
- 3) We also have to be creative. For example, although it is important to assist those trapped by inadequate education and skills in the old, disappearing economy, we should also be realistic about their capacity for retraining at the advanced level required by the global economy. Instead perhaps we should take the approach that first built Michigan's 20th century economy by strongly recruiting and supporting the immigration of talented people from around the world. After all, today over one-third of all startups in this state are led by immigrants!

## CONCLUDING REMARKS

In our early effort to develop a strategic roadmap for the future of Michigan we sensed a growing concern and frustration on the part of many citizens with the deafening silence about our state's future that characterized our public, private, and education sectors.

Too many of our leaders, in government, industry, labor, and universities, have simply not been willing to acknowledge that the rest of the world is changing.

They have held fast to an economic model that is not much different from the one that grew up around the heyday of the assembly line era—an era that passed long ago.

For decades the leadership of this state—whether in state government, corporations, labor, cities, or colleges and universities—has been backing into the future, hoping in vain that our factory-based manufacturing economy would return.

Yet that manufacturing economy so dominant in a 20th century world has not returned, and the risk of today's myopia is that by the time we come to realize the permanence of this economic transformation, the out-sourcing and off-shoring train have left the station, taking with it the rest of our good jobs.

To be sure, it is difficult to address issues such as developing a tax system for a 21st-century economy, building world-class schools and colleges, or making the necessary investments for future generations in the face of the determination of the body politic still clinging tenaciously to past beliefs and practices.

Yet the realities of a flat world will no longer tolerate procrastination or benign neglect.

For this effort to have value, we believe it essential to explore openly and honestly where our region is today, where it must head for tomorrow, and what actions will be necessary to get there.

We simply must stop backing into the future and, instead, turn our attention to making the commitments and investments today necessary to allow Michigan to compete for prosperity and social well-being tomorrow in a global, knowledge-driven economy.

As we stand at the brink of a new century and a new millennium, Michigan is learning to live with change as a fact of life.

It is woven into the fabric of our daily lives, in the way we work, relate to each other, and experience the world.

We simply must recognize that in an age of knowledge, our greatest wealth is the quality and diversity of our people.

Why? From our forbearers, we inherit a priceless legacy of pioneering spirit, gritty courage, and self-reliance. They made our farms and factories the best in the world in earlier times.

If we believe in our people and invest in their education and training, we can rely on them to once again put us at the forefront of innovation, productivity and trade.

Today and in the future, it is people, their character, knowledge, skill, and ability to innovate that, when allied with developing technologies, give us the competitive edge in the world economy.

The key to economic growth is education, not economic development programs.

Education is the only enterprise that will save us from becoming a backwater economy. It is a point of lift off, from which we can create new markets, processes, and skills.

Hence our goal is simple in principle if challenging in execution:

To transform what was once the manufacturing center of the world economy into what could become its knowledge center.

Put another way, while this region provided the muscle for the manufacturing economy that powered the 20th century, I believe it has the capacity to become the brains of the 21st century knowledge economy.

And what could be more appropriate for a region of the nation established more than two centuries ago on a founding principle of the Northwest Ordinance (now chiseled in the frieze above the central building on our Ann Arbor campus)

“Religion, morality, and knowledge being necessary to good government and the happiness of mankind, schools and the means of education shall forever be encouraged.”

Perhaps it has never been more imperative that we heed this principle by making education the cornerstone of the effort to position Michigan for prosperity and social well being in a global, knowledge economy!

