

Ann Arbor Rotary Talk - January 9, 1985

Media Hype

We've been bombarded by lots of media hype in recent months
that would suggest that Michigan may become a focal point
of high-tech R&D...

Some Antedotes

John Naisbitt--Megatrends

Ann Arbor as tops in nation for small high-tech business
We've become the darling of the press

NYTimes

High tech is spurring the race to retool in the Midwest

"This is where the technol action is going to be
for the next 20 years"...Conway

Yesterday's article on Dick Dauch of Chrysler...
the new spirit of Michigan!

Television

Financial analysts point to "Automation Alley"
the "fertile crescent" running from Warren to AA
California dreamin'

All of Silicon Valley is buzzing about Ann Arbor
Bobby Inman, President of MCC Visit

What is happening in Michigan will signal what will
happen in the nation to our industrial capacity.

What is going on here?

Why all this excitement about Michigan?

Is there fire beneath all the smoke???

There are four reasons for the excitement...

Reason #1: Intellectual

Michigan is where our nation makes things...

Cars, refrigerators...machines that make cars ...

Surrounded by excitement of industry in transition

"factory of the future"

robotics, machine intelligence, animate systems

EDS, Hughes, Saturn

But these are just tip of the iceberg!!!

Let me explain...

The Michigan Economy

Michigan's economic engine:

--and will remain for the foreseeable future --
durable goods manufacturing.

State becomes prosperous in only way:

By increasing value of goods and services that
industries

in its economic base sell outside the state. Industries
such as retail trade and medical services do not
contribute

to economic base, but simply shift resources internally
from one economic sector to another.

Challenge:

Must shift Michigan's economic base toward those
products

and processes that are less vulnerable to low-wage
competition and more dependent on human skills.

Key: Michigan must become America's factory of the
future

The nation's center of complex manufacturing
processes...

The world's source of emerging industrial technology...

Note: New technology ("high-tech") in Michigan
will not be a separate industrial sector...

rather it will be at the heart of every industrial sector

A fascinating and unique convergence of technology...

The chip, computers, AI, new materials, mech systems

Driven by money (investment) and need (competitiveness)

Michigan-->nation's source of emerging industrial technology

A transition is occurring in which..

Intellectual capital ("brainpower") is replacing

financial or physical capital as key to economic
development

Reason #2: Leadership

Leaders in our state have recognize the importance of
technology

Michigan leaders have not only recognized importance of
technology

The have also demonstrated vision & courage to make key
investments

Attempting to establish clear priorities critical to future

Then to develop mechanisms to focus resources on
priorities

Some examples:

Roger Smith's efforts to build the corporation of the future
GM + EDS + Hughes, Saturn,...

Chrysler's rebound under both strong leadership and
the implementation of new technology

The efforts of entrepreneurs such as Dwight Carlson
and Sam Irwin

Governor Blanchard's efforts

Attempting to improve small business environment

Reemphasizing importance of investing for the future
Higher Education!

Ex: MCC situation ... Higher ed cuts did us in

New initiatives:

Industrial Technology Institute

Molecular Biology Institute

Michigan Materials Processing Institute

Research Excellence and Economic Development Fund

Michigan Strategic Fund

Assembled a strong team:

Doug Ross, Pete Plasterik, Bob Bowman,

Jamie Kenworthy

Reason #3: Attitude

Conviction

Importance of individual achievement, of excellence

Example:

Apple philosophy...enormous confidence in the
ability of talented people to do great things

General Motors philosophy...an effective
organization

can accomplish great things, even with mediocre
people

The Goal

To establish an intense, entrepreneurial environment...a no-
holds-barred, go-for-it culture...in which individual initiative,
achievement, and the quest for excellence are dominant
elements.

Reason #4: Some unique resources

Infrastructure of this State

The world center for complex manufacturing activity

Unique R&D resources

General Motors Research Laboratory and Tech Center

Ford Scientific Laboratory

Dow and Michigan Molecular Institute

Michigan's academic institutions

A broad and deep system

Ex: Produces over 6,000 engineering each year!

Ex: My own University ranks 1st or 2nd in the nation
in the production of engineering graduates...

Drawn from the 98th percentile of high school
graduates

Ranked 5th or 6th nationally

Suggestion: These institutions will play a key role in making

Michigan the focus of the economic renaissance of the
industrial

nation!!!

Key factors in technology-based economic development

Technological innovation

Technical manpower

Entrepreneurs

Importance of world-class research universities

Strong evidence to suggest that a primary catalyst and
necessary ingredient in technology-based industrial
development is the presence of a world-class engineering
school.

Look around:

New England: --> MIT

Bay area-Silicon Valley --> Stanford & UCB

Southern California --> Caltech

Austin --> U. Texas

Why?:

Produce talented engineers to implement new technology

Through research produce creativity necessary for innovation

Attract "risk capital through federal R&D

Key to technology transfer

Traditional: graduates, publications

Entrepreneurs

Startups

A fact of life:

Only world-class research universities are capable of major impact

Must play in the big leagues...with MIT, Stanford, Berkeley...

To attract the outstanding faculty and students and massive resources necessary for technological leadership

Only a handful of such schools -- not more than a dozen or so

Some examples of the excitement

CRIM - ITI

The Center for Research on Integrated Manufacturing, responsible for the basic research and instruction necessary to sustain the Industrial Technology Institute -- to maintain the momentum of Automation Alley now developing in Michigan

CMI - EDS

The Center for Machine Intelligence, an exciting new venture formed with the participation of industry and federal government to explore the whole new technology of thinking machines -- machines that can perceive their environment, think, and act... First applications will be in manufacturing. However, the next generation of thinking machines will be designed and built by intelligent machines!!! Note it's address is 200I!

CAEOT

The Center for Advanced Electronics and Optics Technology, aimed at research into the marriage of electronics and odptics - - lasers on a chip. It will be the largest university laboratory in the nation specializing in ultra high speed, high frequency electronic devices and advanced electronic materials such as gallium arsenide.

CITI

The Center for Information Technologies Integration, essential a "skunkworks" operation, exploring the forefront of modern computer telecommunications with several of the leading companies in the nation. The U of M will be the laboratory, the "test-bed", for this exciting venture.

Summary:

UM has reprioritized its programs to beter align them with industry...made new commitments and investments...attracted to Michigan some extraordinarily talented and exciting engineers and scientists...all in our effort to play the role that we must in Michigan's technological and future.

An excellent lesson: MCC

Bobby Inman's visit last week

Some dark clouds

Traditional attitudes die hard...

Misunderstandings

Cannot prosper with a service economy

Michigan's strength: manufacturing

Attitudes on part of elected public officials

Attitude in Legislature

Porkbarrel attitude toward higher education

Ex: Across-the-board funding (REEDF)

Ex: Olympic Training Village

Ex: New engineering schools

Traditional Midwest Attitude:

Bill Hubbard

an extraordinary intolerance of extreme excellence!

We always seem to act as if we had a morale responsibility to level out peaks of excellence -- to pull everybody down to the same level of mediocrity.

Conclusion

Remember key operating principles:

People-dependence

In the long run, people are the key to excellence.

If Ann Arbor -- and indeed, Michigan, wishes to

prosper, we must attract to state

individuals of extraordinary talent and drive, and then

provide an environment in which they can flourish, without

constraints, without hassles. We have to establish an

"entrepreneurial" environment in which people are encouraged

to push to the limits of their abilities.

Prioritization and commitment to excellence

We must recognize that the achievement of excellence requires

first prioritizing our efforts, and then focussing resources

to become the best in these endeavors. At the U of M we are attempting to do just that in areas we believe are critical to the future of this state. I

would suggest that this same philosophy must become deeply

imbedded in public policy over the long term if our community and our state are to grasp the extraordinary opportunities that now lie before us on a silver platter

Must build a new coalition...

between public and private sector

between State government, state resources,

business, and industry

Must demand the investments necessary today if

Michigan

is to compete for prosperity for tomorrow

Conclude by paraphrasing a quote from Frederick Terman

former dean and provost of Stanford

and "father" of Silicon Valley

Our future will depend on our ability to establish

priorities and focus resources to build

"spires of excellence" in areas of technology critical to our state's and our nation's future!

Michigan can indeed become the nation's source of emerging industrial technology...we can go for it

all...but only if we are willing to focus our efforts,
to make the investments today necessary for prosperity
tomorrow.