

Michigan: UM Importance

Let me ask a few questions:

- How many of you graduated from UM?
- How many of you have relatives who graduated from UM?
- How many of you have either been treated yourself or had relatives treated at UM Medical Center?
- How many of you have been entertained by cultural events of UM?
- How many of you are Michigan Wolverine fans?
- How many of you have benefited from economic development activities of the University?
(While you may not realize it, you all have...)
- How many of you have benefited from the research activities of the UM?
(The fact that you are not speaking German or Japanese...
...as a result of having lost WWII...
...or suffering from diseases such as polio
...indicate that you all have...)
- From this short survey, it seems evident that there is not a person in this room whose life has not been touched by the University of Michigan in some way.
- It is clear that the public research university...
...an institution for which the University of Michigan is not only the prototype, but perhaps also the flagship...
...touches the lives of a great many people in a great many different ways...
- Through education, research, and service...
through health care, economic development, and
...yes...even through a sense of pride in their athletic accomplishments.
- Yet as important as these institutions are today in our everyday lives, it is my belief that in the future they will play an even more critical role as they become the key player in providing the knowledge resources...knowledge itself, and the educated citizens capable of applying it wisely... necessary for our prosperity, security, and social well-being.

My Message

- As many of you know, I am a scientist by training and background...indeed, I am perhaps the worst of all types of scientists...a burned-out theoretical physicist.
- As such, I suffer from two character flaws:
 - i) First, I tend to a bit too candid in my remarks...
...I generally tell it like it is...
...or at least how I think it is...
 - ii) Second, I tend to be one of those folks who lives more in the future than in the present or the past...
- My message today will be suffer from both of these character flaws...
- As I look to the future, I am sensing an ever-accelerating pace of change in our society, in our state, in our nation, in our world.
- Yet I also fear that few have realized the enormous changes that our society is undergoing as it approaches the 21st Century.
- We are becoming more diverse, more pluralistic as a people. Indeed, almost 90% of the new entrants into our workforce during the 1990s

will be people of color, women, or immigrants.
Our economy and commerce are becoming every
more interdependent with other nations as
the United States becomes a world nation,
a member of the global community --
as this past year's events in China, Russia,
and Eastern Europe make all too apparent.
And we are rapidly evolving into a new post-industrial
society, in which the key strategic resource
necessary for prosperity and social well-being
has become knowledge itself, that is,
educated people and their ideas.
Indeed, knowledge will play the same role that in the past were played
by natural resources or geographical location or
unskilled location...
In the pluralistic, knowledge-intensive, global
future that is our destiny, it is clear that the
quality of and access to
...education in general
...higher education in particular
...and great research universities
such as the U of M most
specifically of all
are rapidly becoming the key determinants
of the strength and prosperity of our state.

Let me explain...

The Many Michigans...

Part of the difficulty here is that our universities have
become so complex, serving us in so many ways,
that it is difficult to comprehend the central role
they play in our lives.
What images come to mind when you hear
the words "The University of Michigan"
For example, when you hear the words
"The University of Michigan",
you probably think first of those traditional college images:

- Great faculty challenging and exciting students in the
classroom..
- Students studying in our many libraries
- Scientists toiling away late in the evenings in our
laboratories.....stiving to understand the universe
- Scholars pouring over ancient manuscripts in
our collections of antiquity

But there are other images that, in many ways,
better reflect the extraordinary impact that
the university has on our everyday lives.
There is the Michigan of those marvelous Saturday
afternoons in the fall as 105,000 fans cram into
Michigan stadium to watch the Wolverines...
or the pride you felt when Michigan
won the NCAA championship in one
of the greatest Cinderella moments in sports.
Perhaps you think of the Michigan of the Big Chill...
The tradition of student involvement helping to awaken the
conscience of a nation...
The teachins of the 1960s against the war in Vietnam
Earth Day in the 1970s
The effort of the 1980s to achieve equity
and social justice for people of all races,
cultures, and nationalities.
Or Michigan of the arts...

Attracting to our state some of the most
 extraordinary performers of our time...
 Bernstein, Horowitz, the Grateful Dead...

There is also the caring Michigan as seen by the over 750,000
 patients each year who are treated by the UM Medical Center,

Or the Michigan as Silicon Valley East, working to build the
 high-tech infrastructure necessary to create new companies
 and new jobs...as evidenced by the \$5 B industry in
 industrial automation now building up in the Ann Arbor-
 Detroit-Warren crescent...

Or the Michigan which attracts to our state almost
 a quarter of a billion dollars of federal R&D each
 year...not to mention many of the world's
 leading scientists and engineers

Or the Michigan of the "cutting edge",
 which conducts the research that changes our lives...
 as evidenced, for example, by announcement this fall
 that a Michigan team had identified and cloned
 the gene responsible for cystic fibrosis,
 thereby opening up the possibility of saving
 thousands of lives every year.

Or Michigan as the University of the World...
 Long reknown as a truly international center of learning...
 Whether it be through our great area studies programs
 the China Center, producing advisors to presidents...
 Japanese Studies, Southeast Asian Studies
 Russian and Eastern European Studies
 Or our alumni throughout the world...

Or the Michigan of outer space...
 ...Apollo 15...the Michigan mission to the moon...
 ...which not only established the first UM Club in space...
 ...but named a crater after Michigan on the moon.

And, of course, there is the Michigan as the educator,
 attempting to provide, in the worlds of one of our first
 presidents "an uncommon education for the common man"
 an education as good as any available in the world
 for all citizens, regardless of race, creed, and
 socioeconomic background
 ...to over 340,000 living alumni throughout the world...
 ...150,000 in our state alone.

It is important to note these different perspectives of the
 University because all too often we tend to think
 of these marvelous and complex institutions in
 one-dimensional images that reflect only our particular
 interests or needs of the moment...
 ...when we read about student unrest on our campus...
 ...or open the tuition bill for our son or daughter...
 ...or see Michigan get two kickoffs run back on them by Notre
 Dame...

What is the University of Michigan?

The comprehensive research university is
 a very large, complex, and diverse beast...
 University of Michigan = "mega-university"

- i) Spans all intellectual disciplines and
 professional areas
- ii) Provides instruction, research, service
- iii) Attempts to conduct programs that rank
 among the nation's best in all areas
 (and succeeds...)
 (Indeed, most of our academic programs
 are generally ranked higher than our

football or basketball teams!!!)

Parameters:

Enrollment: 36,000 (Ann Arbor) (47,000 total)

Faculty: 3,200 (14,000 employees)

Budget: \$1.6 billion

(of which less than 15% comes from the State...
indeed, with the erosion of state support over
the past decade, we now find ourselves in a
position in which tuition revenue and
federal support each exceed our state appropriation!)

Academic Units

17 Schools and Colleges

Hundreds of research centers, institutes,
and other types of interdisciplinary
programs

We also run the largest health care system in
the Midwest, treating over 750,000 patients each year...

We conduct events in the performing arts which rival
New York and London...

whether it be Leonard Bernstein performing his 70th
birthday concert with the Vienna Philharmonic
or, God-forbid, the Grateful Dead...

And, speaking of entertainment, we also have the
Bo and Steve show...the Michigan Wolverines...
playing in the fall to 105,000 every Saturday afternoon

Or, in the winter and spring, to every household in America...
...at least if we make the Final Four....

Themes of Pluralism, Globalization, and Knowledge

Our universities today are at a particularly important moment
in history, since they are being called upon to
educate students who will be spending most of their
lives in another century...citizens of the 21st Century,
if you will.

And while it is always risky to try to speculate about the
future our students will find, three themes of 21st
Century America seem clear...

i) It will be future in which our nation becomes a truly
multicultural society, with a cultural,
racial, and ethnic diversity that will be extraordinary
in our history

In which those groups we refer to today as
minorities will become the majority population of
our nation in the century ahead...

In which women take their rightful place as leaders
of America...

ii) It will be a future in which America will become
"internationalized"...

in which every one of our activities must be viewed within
the broader context of participation in the global community...

In an age of intercontinental missiles, threats to the global
environment, instantaneous worldwide communications,
a world economy, and an international marketplace of
ideas and arts and political trends,

it is clear that we are becoming increasingly
interdependent with other nations and other peoples.

Further, as the destination of roughly half the world's
immigrants, the United States is rapidly becoming a
"world nation" with not simply economic and political
but strong ethnic ties to all parts of the globe.

The 21st Century will be the first post-European century
in American history.

An absolute majority of young people born in US
in the 21st Century will be born of parents
of other than European background...
Asian, African, Hispanic
And this will represent a major change in the
character of our society.

iii) The Age of Knowledge

But there are even more profound changes underway...
Looking back over history, one can identify certain
abrupt changes, discontinuities, in the nature,
the very fabric of our civilization...

The Renaissance, the Age
of Discovery, the Industrial Revolution

There are many who contend that our society is
once again undergoing such a dramatic shift in
fundamental perspective and structure.

Today we are evolving rapidly to a new post-industrial,
knowledge-based society, just as a century ago our
agrarian society evolved through the Industrial Revolution.

Some examples:

1. Industrial production is steadily switching away from
material and labor intensive products and
processes to knowledge intensive processes:
2. Our nation's future has probably never been less
constrained by the cost of natural resources.
3. Increasing manufacturing production has come to
mean decreasing blue collar employment!
4. We are in the midst of an information revolution
that is changing the basis of economic competitiveness and world power.
(Indeed, if you want to know the real reason
for the recent events in Eastern Europe,
China, and the Soviet Union--the collapse of
communism--it was the silicon chip which created
a truly international exchange of ideas and
perspectives that could not be constrained by any
government!)

In a sense, we are entering a new age, an age of knowledge,
in which the key strategic resource necessary for our
prosperity, security, and social well-being has become
knowledge--educated people and their ideas.

This new critical commodity knows no boundaries.

It is generated and shared wherever educated,
dedicated, and creative people come together...
and, as we have learned,
it spreads very quickly.

Key element in transformation,
is the emergence of knowledge
as the new critical commodity,
as important as mineral ores,
timber, and access to low skilled labor
were at an earlier time.

The knowledge revolution is happening worldwide
and at a very rapid rate.

Concerns...

Needless to say, these same challenges of pluralism,
of globalization, and of this age of knowledge
that is our future will pose great challenges and
demand similar changes in our state and our nation.

The America of the 20th Century that we have known...
was a nation characterized by a rather homogeneous,
domestic, industrialized society...

But that is an America of the past.
Our students will inherit a far different nation...
 a highly pluralistic, knowledge-intensive, world nation
 that will be the America of the 21st century
Of course, these themes of the future,
 the changing nature of the American population...
 our increasing interdependence with other nations
 and other peoples... and the shift to a knowledge-intensive,
 post-industrial society.
Are actually not themes of the future
 ...but rather themes of today...
 ...in a sense, I have simply been reading the handwriting on the wall...
Yet I also fear that few have realized the enormous
changes that our society is going through as it
approaches the 21st Century.
In fact, it is here in Michigan...in the heart of the "Rust Belt"
 that the impact of these extraordinary changes are
 most clearly seen...
The past decade was a period of great challenge for our state...
 Industries of great economic importance to our
 nation such as steel and automobiles have
 fallen victim to intense competition from abroad...
Plants have closed...our cities are filled with cronically
unemployed...indeed, perhaps even an underclass
Michigan's per capita income has now dropped below
the national average...
 Michigan has dropped to 20th in per
 capita income (and at \$15,393 is now
 slightly behind the national average
 of \$15,481)
 Of course we do rank near the top in some
 economic parameters...
 ...unemployment
 ...the fraction of our students
 who fail to finish high school
 ...incarceration of our citizens in
 prison
In Michigan we no longer worry about nuclear war and
and the bomb because we believe that
 "The odds are greater that America
 will be bought up by the Japanese
 than blown up by the Russians..."
It is clear that our state is in the midst of a profound transition...
 ...from an industrial economy based upon the abundance
 of natural resources, unskilled labor, and, to some degree,
 constrained, slowly moving domestic markets...
To a knowledge-based economy, characterized by intensely
competitive world markets, rapid change, and--most
important of all--educated people and their ideas.
This has not been...and will not be...an easy transition to make.
Indeed, the outcome is still very much in doubt!
 Whether we will emerge from this transition as a
 world economic leader once again...with a
 strong, prosperous--albeit new--economy
Or whether we will fail to heed the warnings...
 ...to make the necessary investments and
 sacrifices today necessary for strength and
 prosperity tomorrow...
 And become an economic backwater in the century ahead.
It is clear that we face a watershed--a fork in the road ahead.
My central theme is that education, broadly defined, will

be the pivotal issue in determining which of these two alternative futures will be Michigan's...and America's. Indeed, I am absolutely convinced that the dominant issue of the 1990s will be the development of our human resources. Previous economic transformations were closely associated with major public investment in infrastructure such as railroads, canals, electric networks, and highways. In the coming economic transition, an equivalent infrastructure will be an educated population.

Examples:

1. We already see this in Michigan...
A recent article by the Booth Newspaper chain noted that the most prosperous cities in Michigan were characterized by a well-educated and highly skilled labor force...areas such as Grand Rapids, Oakland County, and Ann Arbor. Indeed, over 90% of the people in Ann Arbor have completed at least 12 years of school. In contrast, those areas most hard-hit by the economic transition have been cities such as Saginaw, Flint, and Detroit, cities in which only 50% of the population has a high school education.
2. Indeed, when then Vice-President Bush was traveling around the country and meeting with corporate executives to prepare himself for the 1988 election, the message he heard time and time again was the the key investments the United States had to make were in:
 - i) education
 - ii) technology
3. This situation has not gone unnoticed by our competitors from abroad. Indeed in recent trade negotiations, Japan admonished the United States to stop worrying so much about near-term financial issues and instead focus on long-term strategies by investing in scientific research and upgrading the quality of its schools--particularly in critical areas such as mathematics, science, and foreign languages.

Hence the challenge before higher education is the challenge before America...

And the actions we must take...

...and the investments we must make...

...will clearly determine our capacity to respond to this future...

The State of Michigan Response

What has been the response of Michigan to the challenge of change -- to the Age of Knowledge in a Global Economy...

The Michigan Strategy

Blessed with public leaders that recognized the challenge... had the vision to develop a forward-looking strategy to respond... and the courage and skills to implement this strategy...

Economic prosperity lies not in tearing down our old industrial base for a different kind of economy, but in helping that base make the changes necessary to compete in a new economic environment.

The goal: Michigan must become America's factory of the future... its source of emerging industrial technology...

Our ability to innovate will become our principal economic advantage... innovation will be the energy that drives change

To position Michigan as the nation's source of emerging industrial

technology, we recognized we must move along three fronts:

1. To enhance the growth of R&D in Michigan
2. To accelerate the transfer of technology into Michigan industry
3. To develop a strong coalition within Michigan among government, industry, labor, and universities to create a "venture culture"

As we look to the knowledge-intensive future of Michigan, we recognize as have so many other states that it will be our great research universities that will hold the key to our collective prosperity.

Why?:

Key factors in technology-based economic development

Technological innovation

Technical manpower

Entrepreneurs

Produce talented engineers to implement new technology

Through research produce creativity necessary for innovation

Attract "risk capital" through massive federal R&D support

Key to technology transfer

Traditional: graduates, publications

Entrepreneurs

Startups

Importance of world-class research universities

Look around:

New England: --> MIT

Bay area-Silicon Valley --> Stanford & UCB

Southern California --> Caltech

Astin --> U. Texas

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

Development of Unique State-University Partnership

Universities committed themselves to:

Strategically realigning activities into key thrust areas
of major importance to State...

Attracting leading scientists, engineers, and professionals
to staff these programs...

Developing new mechanisms for technology transfer...

State government committed itself to:

Establishing higher education in general and the state's
research universities as a high priority

Providing seed resources to sustain key thrust areas

Developing novel institutions to act as catalysts in these activities

State Actions:

Vision and courage of leaders in public and private sector

Recognized the importance of technology to Michigan's future...

Also were willing to make the investments today necessary
for Michigan's prosperity tomorrow...

1. Research Excellence Fund
\$25 into building key research areas within research universities
2. Centers of Excellence
Industrial Technology Institute
Michigan Biotechnology Institute
Michigan Materials Processing Institute
3. Michigan Strategic Fund
4. New coalitions and partnerships
Fraser-Iacocca Commission on Jobs and Economic Development

University of Michigan Actions:

Background

Since the birth of our state 150 years ago,
there has been a strong bond between the

people of Michigan and their university,
the University of Michigan.

Generation after generation of Michigan citizens
have reaffirmed their commitment to provide in
Ann Arbor an institution capable of:

providing to their sons and daughters an
education equal to the best
attracting to Michigan the most outstanding
scholars, scientists and engineers,
doctors, lawyers, and teachers, and
other professions so essential to our
prosperity and well-being
creating through its research and scholarship
the new knowledge so necessary to
economic growth and development
addressing through a myriad of public
service activities the many challenges
facing our state.

This sustained public investment and confidence
in the University over the years has enable it
to serve the state in all of these ways and more.

Through this unique partnership, the University and
its activities in education, research, and public
service have served our state and its citizens well.

Today our state faces new challenges that will call
once again on the vast resources of its University.

1. Michigan faces a period of dramatic economic
change, during which it must evolve from a
resource-intensive to a knowledge-intensive
economy, in which intellectual capital will replace
financial and physical capital as the key to
economic development and prosperity.

Our state will become ever more dependent on
key knowledge resources such as the UM
as it faces the challenge of intense competition
and rapid technological change, as it enters
the age of knowledge in a global economy that
will be its future.

2. Michigan also faces the challenge of providing to
all peoples, regardless of race, creed, or national
origin, the opportunity to participate in a future of
prosperity and fulfillment.

Here, too, the UM must play a critical role, in
reaching out to underrepresented minorities
and other groups facing inequities in our
society and providing them with the opportunity
for full participation.

This demands a renewed commitment to increase
the participation of those racial, ethnic, and
cultural groups not adequately represented
among our students, faculty, and staff.

The University must serve as a model in its effort
to build a multicultural, pluralistic community on
its campus which achieves new levels of
understanding, tolerance, and mutual fulfillment
for peoples of diverse backgrounds.

3. The University will also be a key in address the
particular needs and concerns of impoverished areas
throughout our state.

It intends to focus its considerable resources in the
social sciences and professions on the problems

faced by Michigan's cities.

It intends to use its vast resources in basic and applied science to develop and transfer the new technologies capable of economic development and growth to all regions of the state, from the metropolitan Detroit area to the Upper Peninsula.

The University views itself as a partner with state government, business, industry, and labor in addressing the needs of the State of Michigan.

Key:

Began to think and act strategically...how to better position ourselves

Recognition:

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!!!

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

Hence, we chose as our thrust areas...

Complex manufacturing systems

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

Machine Intelligence

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 next generation of thinking machines will be designed and built by intelligent machine!!! (Note address is 2001 Commonwealth)

Advanced electronics and optics technology

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

Information Technology

Goal: To use the University as a gigantic laboratory to design the knowledge-based organization of the 21st C

CITI -- The Center for Information Technology Integration, essentially a skunkworks operation exploring the forefront of modern computer telecommunications with several of the leading companies in the nation. The U of M itself has become the laboratory, the "test bed", for this exciting venture.

Center for Collaboration Science and Technology
Cognitive Science and Machine Intelligence Laboratory
Merit and NSFnet
MITN

Health Sciences

\$500 M capital investment in Medical Center
 (R&D growing at 20-25% per year)
 Drug industry in Michigan (UpJohn, Warner-Lambert)
 Particular thrusts
 Molecular Medicine
 Cancer Center
 Geriatrics Center
 Substance Abuse Center
 Hughes Medical Research Institute
 Social Sciences
 UM has perhaps the strongest set of social sciences
 of any university in nation...
 Institute of Social Research...
 Directing attention toward the nature of rapid economic
 change...
 Social Work and Education
 Focusing on problems of urban environment...
 Problems of underclass

Other steps

1. Recruiting key people...
2. Modifying ways we interact with outside world...
 Strengthened interactions with industry
 Research Partnership Programs...
 Break down the ivy-covered walls surrounding the campus
3. Intellectual property policies
 Allowed ownership by faculty and staff
 Allowed equity interest by university
 Building a high quality IPO organization...service oriented
4. Michigan Information Technology Network...

Cultural Changes

Reaffirmation of the importance of individual achievement,
 of excellence...We have once again recognized the ability
 of talented people to do great things -- if we will only
 get out of their way and let them!
 Importance of establishing 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

Already clear evidence of payoff...

1. Darling of the national press...
 Hardly a week goes by without some reference to the phenomena
 occurring in "Automation Alley"...from Warren to Ann Arbor...
 an area now clearly identified as the hot spot of action in
 technology for the next two decades...
 California dreamin'
 Places like Silicon Valley and Route 128 are buzzing about
 Michigan...we are now raiding their best talent...
 We've become a showplace: Bobby Inman, Governors,...
2. University's federal research increased by 25% each of the
 past two years to over \$200 million per year.
 Industrially sponsored research has increased by 50%
 Engineering research has more than doubled, to over \$40
 million per year.
3. Research Excellence Fund has created nationally recognized centers in:
 Complex manufacturing technology
 NSF believes we now have best faculty in nation in these areas
 Machine intelligence
 Advanced electronics
 Information technology
 These programs already have attracted three major national research
 centers funded at \$27 M.

4. Beginning to win a few...
 - Howard Hughes Research Institute
 - DOD URIs (lion's share)
 - High Speed Electronics and Optics (Army)
 - Ship Propulsion and Hydrodynamics (Navy)
 - Expres
 - NASA Center of Excellence for Space Commercialization
 - National Center for Manufacturing Science
 - NSFnet
 - NASA ERC (Remote Sensing)
 - IBM/DEC/Apollo/Apple/Northern Telecom/....
 - Many other smaller activities
 - Several other major initiatives presently brewing...
 - too early to announce, however
5. National Image
 - U.S. News and World Report...
 - UM was ranked 8th in the nation in the quality of its UG education-- UM and Berkeley were only public universities in the top 10...along with schools like Stanford, Harvard, Yale, and Princeton
 - Professional Schools:
 - Law: 3rd
 - Engineering: 6th
 - Business: 7th
 - Medicine: 11th
6. Confidence in University, buoyed by the new priority given by higher education by the state, have enable use to attract to our faculty many of the world's leading scholars and teachers, scientists and engineers.
7. And, at the same time, the University has continued to leverage the state's investment, attracting \$2 from outside the state for every \$1 in state appropriation. Moreover, activities of our graduates and applications of our reserach have an impact on state's economy that totals in the billions of dollars.
8. The growth of a \$4 B industry in industrial automation in the Detroit-Ann Arbor corridor has been traced directly to UM!
9. In 8 states bordering the Great Lakes, there are 16,000 companies producing high text equipment, including robotics, optics, biomedicine, computer software, and electronics.

The Dangers of Underinvestment

But there are some ominous dark clouds on the horizon.

There is increasing evidence that we as a people have not yet recognized either the nature or the magnitude of the investments we must make to achieve prosperity in an age of knowledge.

While we all give the "age of knowledge" lip service, the evidence suggests that in reality, we long for a return to the agricultural and manufacturing economies that once made us rich...

Over the past several years, numerous studies have suggested that Michigan is seriously underinvesting in its "knowledge infrastructure"...by as much as 30% to 40% relative to other states.

The situation is somewhat different yet no less acute for higher education in our state.

While the quality of Michigan higher education today is very high, the long term prognosis remains guarded...

Over the past two decades, the State of Michigan has dropped from the position of a national leader (ranked 6th in 1965) in its public support

of higher education to among the lowest in the nation (ranked 43 th in 1989)

Indeed over the last decade, Michigan's increase in its support of higher education ranks 45th... almost dead-last among the states.

Not exactly what I would call an enlightened approach to the age of knowledge...don't you agree...

As a highly industrialized state undergoing a dramatic change to a knowledge-intensive economy, Michigan is critically dependent upon quality higher education. Yet Michigan has now fallen into the bottom ranks of industrialized states in its support of these critical resources.

We are being outspent by 30 - 40% in state support per student...
Not simply by prosperous states like California...but by neighbors such as Indiana and Ohio!

That we have been able to sustain the quality of public higher education in this state at all in the face of this catastrophic loss in state support has been due in large measure to the traditional autonomy each of our public universities has in its governance.

This autonomy allowed Michigan's universities to take strong internal actions, reallocating resources, redefining priorities, and increasing tuition levels to partly compensate for reduce public support.

But in recent years, even this autonomy has been under siege...through efforts from Lansing

- i) to constrain tuition levels to artificially low levels even as state appropriations eroded still further
- ii) to dictate who we must admit
- iii) even to dictate what we must teach...

Whether measured in terms of state appropriation per student or fraction of our tax dollars directed toward higher ed, it is clear that in comparison with other states, our present level of public support is simply inadequate to maintain over the long run a system of higher education that is competitive on a national basis.

Our autonomy has allowed us to continue to move forward ...even though the gas tank is running on empty...
...but now state government threatens to challenge even about ability to manage our institutions during a period of great financial difficulty...

And threatens to slam the brakes on quality education in Michigan.

Risks to the U of M

The state's flagship institution, the University of Michigan, is at particular risk.

Despite its critical role, the U of M has been particularly disadvantaged in its efforts to achieve adequate state support in recent years.

Due in part to the intensely political dynamics of legislative process--and to the absence of any public policy in higher education --the University has consistently been given the lowest priority]in state appropriations for several years.

- 1) It has ranked last, 15th of 15th, in five of the last six appropriation years

- ii) The combination of low priority within the legislative appropriation process and the general erosion in state support of higher education has led to a situation in which state appropriations to the University have exceeded the inflation rate in only four of the last 10 years.
- iii) Over the past two decades, the U of M ranks last among Michigan's public universities in the growth in state appropriation.
- iv) A similar picture of eroding priorities appears in the U of M's share of state capital outlay support for academic facilities, where again it ranks last in state support over the past two decades.
- v) Indeed, during this period the State has provided funding for only two new academic facilities on the Ann Arbor campus... and then only at a 50% participation rate.
- vi) Over the past two decades, Michigan's peer public institutions have been receiving an average of \$25 - \$30 M per year for facilities. In sharp contrast, the U of M has received less than \$4 M per year!
- vii) As a result, the inventory of critical facilities needs of the University has now swelled to over \$200 million.

As with the state's other public universities, the constitutional autonomy of the U of M has been the key factor enabling it to sustain the quality of its programs and its capacity to serve the state in the face of eroding state support.

The University has been able to sustain--at least for the moment--its quality in the face of these declining appropriations only by a combination of extraordinary internal management actions.

These difficult actions were necessary to focus resources on only the very highest priorities, intensified efforts to attract resources from the federal government and the private sector, and the need to increase tuition and fees.

The impact of these efforts is obvious as state appropriations became a dwindling proportion of the University's operating funds. In FY90, state appropriations will have slipped to less than 44% of its General Fund (unrestricted) revenues and less than 15% of its total revenues.

Further, even this strategy of internal prioritization and the development of alternative sources of support has been threatened by recent efforts by Lansing to interfere with the University's autonomy in the areas of tuition, nonresident enrollment, and even curriculum and faculty hiring.

It seems clear that such efforts, if successful in the face of inadequate state appropriations, will cause serious and permanent damage to the University.

What is going on here?

What is wrong here???

Who is to blame???

Our elected public officials???

It is certainly not their fault!!

It is clear that our elected leaders, whether in Washington or Lansing or our local communities...

Would like nothing better than to make education their highest priority.

To become

...the Education Governor

...or the Education Party

...or the Education President

They understand clearly the importance of investing in our human resources, and they are searching valiantly for creative ways to improve the quality of our schools and provide adequate and equitable financial support.

But they also face formidable constraints, since in the end they must be responsive to the wishes of the electorate...and face it, gang...the electorate today says:

i) no more taxes...

ii) no more crime...

iii) no more cuts in social services or national defense...

and our public officials have no choice but to respond.

No, the real finger of blame for the crisis we face in education should be pointed, as Michael Jackson would say, at "The Man in the Mirror"... ..at you and at me...

We are the ones who fail to demand the highest quality in our educational institutions in Michigan...

We are the ones who steadfastly resist a tax base adequate to support both our needs and desires...and provide an adequate level of support for quality education in this state.

And we are the ones who insist on building more and more prisons, even when we know that this investment comes out of the hide of education and social services-- which are, of course, the only true long term solutions to crime!

We have become consumers of education, not investors in the future.

Something has changed in America...

You know, I was brought up in a long tradition in

which one's first responsibility was to one's children

My parents scrimped and saved for my college education...

...and my wife and I have done the same for our

daughters (who, since they attended eastern

private universities, have taken essentially all of the

savings we have been able to muster over

the past 20 years)

Saving for a college education came first...

...before a house, before a fancy car, before an exotic vacation

But today's generation is different...

...the "me generation" of the 1960s has grown up into comfortable Yuppieshood...

...it is bad enough that they have not saved

for their children's college education

...and not supported adequate tax programs

to support higher education

...but they have actively encouraged government

at both the state and federal level to intervene

in an effort to hold tuition levels to unrealistic

low levels...

(either not realizing or perhaps not caring that

they were undermining the quality of the

education their children would receive at these

bargain-basement prices--and depriving many

others from less fortunate backgrounds of the opportunity for a college education because of the erosion of financial aid programs in the face of inadequate tuition revenue).j

Our approach to education...like to so much else in life these days...can be summarized by that T-shirt slogan: "Eat dessert first, life is uncertain"

"American's look ahead 10 minutes while Japanese look ahead 10 years..." (Morita, Sony)

We see ourselves caring about the future, but we are not preparing for it.

Yet the writing on the wall could not be clearer:

As we prepare to enter the Age of Knowledge, our ability to sustain the strength of our state and our nation...to achieve the quality of life for our citizens...will be determined, more than any other factor, by how we develop, nurture, and educate that most precious of resources, our people.

So too, those institutions such as the University of Michigan, which are not only capable of, but indeed responsible for, both the creation of new knowledge... and the education of those capable of applying this knowledge to the benefit of our society... must be supported and sustained... indeed...cherished!

Hence, let me conclude my brief remarks by tossing at you-- and at me-- several challenges:

What can be done?

As alumni, citizens, and voters, I urge you to insist that...

1. State government cease its efforts to interfere with the capacity of Michigan's public universities to govern themselves--particularly during a period of serious financial stress caused by inadequate state support.
2. State government develop and implement a strategy to restore an adequate level of public support for higher education to raise Michigan from the bottom third to the top third nationally in state appropriations per student (although this is still far below our historical position).
3. State government bring to an end the present freeze on capital outlay appropriations for higher education (now entering its fourth year) and begin to deal with the seriously deteriorating facilities on our campuses.

Concluding Remarks

To Us...

In a very real sense, our state has entrusted to us its most valuable resources...its youth...and its future.

To be responsible stewards of the public trust, it is clear that we must strive to achieve greater cost-effectiveness in our use of public funds... and I can assure you that we intend to do just that.

But even beyond this, we must become staunch guardians for the quality of our institutions...

For in education, as in every other aspect of American life, quality will be the key to our future.

Hence, to us falls the responsibility of taking the forceful and courageous actions necessary to sustain and enhance this quality...in the long run the people of this state both demand and deserve nothing less!

To You...

Higher education represents one of the most important investments a society can make in its future...since it is an investment in its people...

It is indeed the case that our state and our nation have developed the finest systems of higher education in the world...

But we must also remember this resulted from the willingness of past generations to look beyond the needs and desires of the present and to invest in the future by building and sustaining educational institutions of exceptional quality--

Institutions that have provided those of us in this gathering today with unsurpassed educational opportunities.

We have inherited these marvelous institutions because of the commitments and the sacrifices of previous generations...and it is our obligation as responsible stewards--not to mention as responsible parents--to sustain them to serve our own children and grandchildren.

It seems clear that if we are to honor this responsibility to future generations, we must re-establish the priority of both our **personal** and our **public** investments in education, in the future of our children ...and hence in the future of our state and our nation.

To our elected leaders...and those aspiring to public office

1. Our public leaders must develop and implement a strategy to restore an adequate level of public support for higher education to raise Michigan --that raises us from among the very bottom among the states to a position of national leadership once again.
2. They must bring to an end the present freeze on capital outlay appropriations for higher education (now entering its fourth year) and begin to deal with the seriously deteriorating facilities on our campuses.
3. They must cease their efforts to interfere with the capacity of Michigan's public universities to govern themselves--particularly during a period of serious financial stress caused by inadequate state support.
4. And most of all, our public leaders must come to understand that they are stewards for the moment of an extraordinary resource for our state--one of the world's finest systems of higher education--a system that has resulted from the commitment and sacrifices of eight generations of Michigan citizens. They will be judged by future historians by how wisely and effectively they protect and sustain this great resource, so critical to our future.

The Challenge to Us All...

Today Michigan faces serious challenges that will clearly determine its future prosperity and well being...

the challenge of pluralism...

the challenge of participation in a global community...

the challenge of the Age of Knowledge

the challenge of change itself...

As we approach a new century, our state is undergoing
a profound and difficult transition to a new economic
order...

Our fabulously prosperous industrial economy...
an economy that allowed us to build some of the
world's great institutions---including some of its
finest universities--

But that economy is rapidly disappearing...
...and our challenge for the next decade is to
take the steps necessary to build a new
knowledge-based economy which will be
competitive in a world marketplace.

This will not be easy...

It will take sacrifice on all of our parts...

It will take renewed commitment to that
most fundamental of all characteristics
in the new economic order: quality

And it will take renewed investment!

If we are to respond, we simply must reorder the priorities of this state...

We must shift away from the temptation to
address only the needs and desires of the moment

And, instead, we must begin to make some of the key
investments necessary for the long term...

The key investments in our people...
in our children...

Michigan continues to be blessed with abundant
natural resources, a people of great strength,
and a system of higher education of a quality
envied by the rest of the nation...indeed the world!

But, the writing is on the wall...

If Michigan is to prosper in the age of knowledge
that is almost certainly our future, we must join together
now to restore both our public and
personal investments in education...
...in our people and their ideas...
...in our children...
...and in our future