

## IPPS Talk -- March 2<sup>nd</sup>, 1989

### Welcome

Welcome to Michigan.

We are delighted to be able not only to host this symposium, but to have played a role in having many of our people

### □ - play a key role in the issues that will be discussed today.

Such public service is not only an important responsibility of public institutions such as Michigan...but it is perhaps the most unique theme of higher education in America...

For the bonds between the university and society are particularly strong in this country...

Historically our institutions have been responsible to, shaped by, and drawn their agendas from the communities that founded them...

These institutions grew up with our State...responding to the changing needs and aspirations of its people...

- i) First as Michigan tamed the frontier...
- ii) Then as it evolved through the industrial revolution into the manufacturing capital of the world...
- iii) As the population of our state surged following the war years...
- iv) And most recently, as Michigan has sought to strengthen and diversify its economic base.

In the important area of economic development, the University of Michigan has brought to bear leading programs such as:

Institute for Public Policy Studies  
Institute of Labor and Industrial Relations  
Research Seminar on Quantitative Economics

to provide the vision, and the full range of its academic programs including schools such as Engineering and Business Administration to provide the impact.

As an example, the major study Path to Prosperity that served as the roadmap for the Blanchard administration

economic policy was developed largely at this University...

I would also note that this study provided the blueprint for the economic development strategy we have taken in aligning the University of Michigan with state needs.

(I have a well-worn copy that used to sit on my desk as

Exec 3 - Engineering Dean...)

In this Symposium you will get some sense of just how

Executive 8 - important that document was...and just how much of it

read 3 - changes it pre-  
"ted have indeed" occurred.

Since you will primarily focus on economic iskets designed to power the first manned mission to Mars...and the use of lasers to trigger tiny thermonuclear explosions as a new source of energy.

in the 1980s I refocused my efforts on building an Engineering College which I believed could trigger a major economic resurgence in this state...and lead efforts to build world-class programs in robotics, microelectronics, artificial intelligence, and computers

In the late 1980s as a member of the National Science Board, I have been working very hard to strengthen the science and engineering base of this country... with my particular focus on the development of the scientists and engineers we will need to keep our nation strong and

And, now, entering the 1990s, I find myself looking once again to the future, facing the challenge of helping to build a University able to serve our state and our nation in the 21st Century.

Over the years, I have become increasingly convinced that education -- or more generally, the development of human capital -- will become the dominant issue for our state, just as it will be for our nation, in the 1990s and beyond.

Yet I also fear that few have realized the enormous changes that our society is going through as it approaches the 21st Century.

In a very reyl sense, we are entering a new age... what has been termed, an "age of knowledge", in which knowledge...that is, educated people and their ideas...will become the keys to our future...

And in this knowledge-intens...ve future, research universities such as the University of Michigan will become the cornerstone of our prosperity and well-being...

### **Challenges for Today--Opportunities for Tomorrow**

While it is always risky to try to predict the future, three themes of 21st Century America seem clear:

- i) the changing nature of the population of our nation
- ii) our growing dependence on the global community
- iii) our shift from a resource-intensive to a knowledge-intensive society

Let me consider each of these themes for a moment...

#### **1. Demographic Change: Diversity and pluralism**

America is changing rapidly...

When we hear references to the demographic changes occurring in our nation, our first thought probably focuses on the aging of our population.

It is indeed true that the baby boomers are now entering middle age, and their generation has been followed by a baby bust... in which the number of young adults will be declining over the remainder of this century by roughly 20%.

And while the rapid increase in the average age of the American population is being driven primarily by the

huge increase in the number of middle-age Americans as the baby boom grows up, this has followed on the heels of a significant growth in the 1980s in the number of senior Americans.

Indeed, today there are more people over 65 than teenagers in this country, and this situation will continue for the remainder of our lives.

Further, the growth rate in both our population and workforce is declining to the lowest level in our nation's history.

America will simply not be a nation of youth again in our lifetimes.

(Note: This is in sharp contrast with much of the rest of the world. For example, in Latin America and Asia, the young comprise 40% of the population, in contrast to 20% in the US and Europe)

Yet, there is a far more profound change occurring in the population of our nation.

America is rapidly becoming the most pluralistic, multicultural nation on earth.

By 2000, one-third of college age students will be Black or Hispanic...

By 2000, 47% of our school children (K-12) will be Hispanic or Black (today 25% are)

In the second half of 21st Century, Hispanics will likely become the largest population group in America

Those groups we refer to today as minorities will become the majority population of our nation in the century ahead...just as they are today throughout the world.

**3 + Note: It is important to realize here that 21st Century**

America will NOT be a melting pot! In which all cultures are homogenized into a uniform blend.

Rather, it will be pluralistic...composed of peoples of various

y different backgrounds, cultures, and  
beliefs...peoples who seek to retain their cultural  
roots...to maintain their identity!

In this future, the full participation of currently underrepresented  
minorities will be of increasing concern as we strive to  
realize our commitment to equity and social justice.

**But, in addition, this objective will be the key to the  
future**

strength and prosperity of America, since our nation  
cannot afford to waste the human talent

re  
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It will be a future in which America will become "internationalized"...  
in which every aspect of American life must be viewed from  
the broader context of participation in the global community...

Whether through travel and communication, the arts and  
culture, the internationalization of commerce, capital,  
and labor, we will become increasingly dependent on  
other nations and other peoples.

Some facts of life:

The fact is that a truly domestic US economy has ceased to exist.  
The market for nearly all significant manufacturing industries  
has become world-wide

In slightly more than 5 years, US trade deficit has taken  
us from the world's largest creditor to its largest  
debtor nation.

Jack Welch, CEO of GE, noted last November:  
"Within the next 2 to 3 years, at most, the most  
important alliances will be forced in every  
significant global industry--medical, autos, defense,  
materials, and so on. Those who are slow to recognize  
the emergence of these global alliances or to act in  
forming them will find themselves locked out of the  
game as we enter the 1990s."

The "shrinking globe" phenomenon suggests that understanding  
cultures other than our own is necessary not only for  
personal enrichment and good citizenship in the global  
community, but indeed, necessary for our very survival as  
a nation...

But there is another important reason for our renewed attention  
to the international agenda of the University.

The US has become the destination of about half the world's immigrants  
Probably 10 million this decade alone...

With falling fertility rates, immigration will soon become  
the main determinant of the variability in our population.

America is evolving into the first true "world nation",  
shifting rapidly away from Eurocentricity into a society  
with strong ethnic ties to all parts of the globe--  
with a growing focus on the nations of the Pacific Rim.

We are no longer self-sufficient or self-sustaining. We are not  
immune to the shocks of the world society. We have never  
been more dependent on other nations and peoples.

### 3. The Age of Knowledge

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.

As Erich Bloch, Director of the National Science Foundation suggests, we are entering a new age, an "Age of Knowledge"

The signs are all about us.

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.

A transition in which..

Intellectual capital--brainpower-- is replacing financial and physical capital as key to our strength, prosperity, and well-being

This is having a profound impact on our social structure, culture, and economy.

In many fields, the knowledge base is doubling every few years...indeed, in some fields the knowledge taught undergraduates becomes obsolete even before they graduate!

The typical college graduate of today will likely change careers several times during a lifetime...

Hence a college education will only serve as the stepping stone to a process of lifelong education... and the ability to adapt to...indeed, to manage change...will become the most valuable skill of all.

As our society becomes ever more knowledge-intensive, and hence ever more dependent upon educated people and their ideas...

As we enter this new age of knowledge that is our future, it is clear that we will become ever more dependent on our research universities as primary sources both of new knowledge and those who can apply it.

#### Concerns...

Needless to say, the same challenges of pluralism, of internationalization, and of this age of knowledge that is our future will also pose great challenges to our state.

Indeed, I am absolutely convinced that our State faces a very unusual period of challenge in the decade ahead...a watershed, in a sense, from which we can either emerge at a national leader...or as an also run... or perhaps even worse...as an Appalachia...

Maintaining Michigan's competitive edge requires attention to our traditional strength -- people and research -- and a strong offensive strategy based on these resources.

My central theme is that education, broadly defined, will play a pivotal role in the coming economic transition and its impact on individuals.

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.

### **Clouds on the Horizon: Some warning signs...**

#### **WARNING SIGN 1: Michigan is slipping**

No question that we have lost lead in many areas

Industrial productivity and heavy manufacturing

Steel, durable goods, ...

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...which may well exceed 10% along

the I-75 corridor...

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)

Our unemployment rate consistently is at the  
top...

#### **WARNING SIGN 2: A Serious Skilled Manpower Shortage**

Traditional source of human capital for business and

industry, that of young adults, is declining rapidly

as we slide down the backside of the postwar baby  
boom.

25%-30% falloff in HS graduates by 1992

Composition of young adults is also changing...

By 2020 30% will be composed of Blacks and hispanics...

students who have not traditionally had the

opportunity for the education necessary for

knowledge-intensive careers.

#### **WARNING SIGN 3: Labor force faces a particular challenge...**

Michigan is undergoing dramatic change in industry...

Unskilled labor will lose relevance in a world dominated

by microelectronics, computers, and automation.

Statistical quality control and just-in-time inventory

systems require production workers with mathematical

abilities that are far beyond the present level.

Of all the inputs into our economy, the quality of

our workforce is probably the most critical.

There is a very serious question as to whether we are

providing adequate educational resources to

produce the quality of workforce necessary for the

knowledge-intensive future of this state.

The education of the Michigan workforce is inadequate

to the demands of the next century.

It is bad enough to face the prospect of a significant fraction

of our labor force becoming permanently unemployable because

of an inadequate education. Do we want to condemn their

children...OUR children...to a similar fate? Can we afford it?

#### **Warning Sign 4: The Dangers of Underinvestment**

Perhaps the most ominous dark cloud on the horizon of all is the

increasing evidence that we as a people we have not yet recognized

either the nature or the magnitude of the investments we must

make to achieve prosperity in an age of knowledge.

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.

Particular concern has been focused on the "education pipeline"

in Michigan...from pre-school through K-12 education

through higher education to lifelong education.

The challenges faced by K-12 education were well-summarized in a recent editorial in a Detroit paper:

"If Michigan is to prepare tomorrow's workers for tomorrow's jobs, major structural changes are needed in public education, both in classroom quality and in the adequacy and fairness with which the system is financed."

"What is required is a strengthened commitment in Lansing to school finance reform and improving the quality of basic and higher education, and a greater political willingness to stand up to special interests who would thwart those long-term goals to pursue short-term objectives. The opportunity to eliminate chronic unemployment in Michigan may be never more within our grasp than between now and the end of the century. The alternative is a growing mismatch of job opportunities and job training that threatens not only the state's recent prosperity, but its very solvency."  
(Free Press editorial, 1/5/89)

Yet, we continue to be paralyzed in our efforts to come to grips with school finance reform or major structural changes necessary to achieve quality in public education.

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...

Despite herculean efforts by the Governor and the State Legislature in recent years to restore adequate support for higher education in Michigan after the devastating cuts of the early 1980s, we continue to fall further behind the national average in state support.

Our state has dropped from 6th in the nation in its support of higher education to 35th over the past two decades... into the bottom third!!!

Over the past 10 years, high tech states such as California, New Jersey, Massachusetts, and New York have seen real dollar increases in higher education appropriations of roughly 20 to 30%. In sharp contrast, over this period Michigan has declined by 4.5%...

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.

### **What has happened to our priorities?**

What is wrong here???

Who is to blame???

Our schools and colleges???

Certainly they must take stronger actions to improve quality...and strive harder to operate in a more cost-effective manner...

But their present situation reflects as much as anything else our own personal priorities...

...as parents

...as volunteers...

...as citizens and voters...

What about our elected public officials???

It is certainly not their fault!!

Listen to their recent messages...

whether it be the Governor's State of the State address...

...or the response from the state Republican leadership...  
 ...or the President's State of the Union address last week...  
 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.

We are the ones who block any effective efforts to achieve  
 equitable financing of education in Michigan.

We are the ones who generally are too busy to help our own  
 children in their studies or participate in their activities.

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 are the ones who complain about higher tuition costs  
 at our public institutions, even though we know that  
 these fees represent only one-third to one-fourth of the actual  
 costs of an education on our campuses...  
 and that our colleges provide adequate financial aid  
 to offset the burden of even these modest costs to  
 those in need...

Indeed, there is a particularly tragedy in this disturbing recent  
 trend, because when combined with the serious limits  
 on public support which now exist in our state,  
 successful efforts to prevent adequate tuition  
 levels for those who can afford to pay them, will  
 not only undercut our capacity to provide financial  
 aid to those less fortunate, but beyond that, will  
 force our institutions down a path of towards mediocrity.

Let there be no doubt about it...

In higher education, as in every thing else in life, if you want  
 bargain basement prices...you will eventually end up  
 with bargain basement quality...

If there is one common theme to these trends, it can be  
 summarized by that old T-shirt expression:  
 "Eat dessert first, life is uncertain"  
 We have become a "live for the moment society"



The "Me Generation" of the 1960s has now up into mature Yuppieshood?

For many years now we simply have not been willing to invest in our future...and the future of our children... We have chosen instead to mortgage this future to pay for mistakes make in our past.

The attitude we have taken toward our most precious resource, our youth, is both callous and alarming.

I simply cannot accept the excuse that "we can no longer afford this investment in the educational opportunities we offer our youth".

To be sure, the immense social needs for welfare assistance, medical care, prisons, and all of the other programs that drain our tax dollars are compelling.

However, by choosing to meet these needs with resources taken away from our system of public education rather than through reforms in our tax structure or political system, we have in reality mortgaged our future by withdrawing the educational opportunities from our youth.

Michigan has had a long tradition of wealth and a caring attitude for its populace. But it seems clear that if priorities are not changed, Michigan will become poorer and poorer and finally it will not be able to meet the "caring needs" of its people. It will then have become a "have not" state.

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.

#### **The Need for a New Coalition**

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...

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...

This is not just the worry of local communities or state government or public institutions

It is everybody's concern!

Each of us must step forward and unite to face the challenge of the future.

We must work together to build new coalitions including the public and private sectors...state government, education, business, industry, and labor...to develop an agenda appropriate to secure the future of our children, our state, and our nation.

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

**Concluding Remarks**

Enough for preaching the obvious...  
The task of this symposium is one of great  
importance both to this state and the nation.  
I wish you the best for an exciting and productive  
experience...