

Futures Talk 1.0

Introduction

You've heard from a new provost...and an old provost...now it is appropriate that you also hear from a has-been provost...

I must admit that I found this morning's session on leadership a very unusual experience...on the one hand I felt like shouting "Right on, brother"... but then I stopped myself and thought, hey, wait a minute...in a few weeks I will have to deal with you folks...

I suppose that the most appropriate title for my talk would be "Behind Enemy Lines"...

But I'm still a provost for three more weeks... and I intend to enjoy every remaining moment of the experience!

After all, while the chief academic officer can be a very frustrating and all-consuming role, it is also the case that as Provost you generally are most concerned with what is really important in a university: teaching and research...

budgets...

and, furthermore, you have the delightful experience of generally dealing with people who are far more intelligent than you are...

So why did I do it?

In part, my decision had a lot to do with my

increasing uneasiness that higher education in America would be facing a period of very unusual challenge... but also opportunity and responsibility...in the years ahead that would trigger...indeed, that would demand... major change, and that the leadership necessary for such changes could most effectively be provided from the office of the president.

A few themes of the future...

The students we are educating today will spend the majority of their lives in the 21st century...

Yet most of us...and our faculties...are products of the 20th Century...

Furthermore, the structure of the American university as we know it today is a product of the 19th Century!

A serious question:

Is higher education in America backing into the future, so preoccupied with the past and the present that we have been unable to develop a vision to guide the education of the citizens of the 21st Century that now study on our campuses?

Are we really educating for the future...

- i) A future in which our nation becomes a truly multicultural society, with a cultural, racial, and ethnic diversity that will be truly extraordinary in the history of our civilization...
- ii) A future in which America will become "internationalized"... in which every one of our activities must be viewed from the broader context of participation in the global community... as America becomes a "world nation", with ethnic ties to every part of the globe...
- iii) A future in which we rapidly evolve from a resource- and labor-intensive society to a knowledge-intensive society,

in which intellectual capital...educated people and their ideas...become the keys to our prosperity, security, and well-being.

If these indeed do turn out to be dominate themes of

21st Century America, then it is apparent that our universities will face some major challenges that will almost certainly drive very dramatic changes in the very nature of the research university.

The job of designing and launching a process to

enable to adapt to this future of challenge and change at our University fell into the lap of the Provost. While one generally thinks of the Provost as the chief operating officer of the University, in fact, much of my time has been spent leading a process designed to look into the future...10, 20, 30 years or more...to determine the possibilities for our University...what it is...what it could become...indeed, what it must become...

As they say in the jargon of planning, we've been

spending a good deal of time "futuring"...gazing into the crystal ball in an effort to determine just where our university should head in the years to come.

Before I share with you some of these observations,

let me convey some warnings:

- i) My view is from a large, Midwestern university, firmly planted in the heart of the Rust Belt... However, Michigan also happens to be an institution with an unusual tradition of student and faculty activism...and frequently we serve as a bellwether for societal concerns which will eventually appear on many other college campuses
- ii) Second, you should bear in mind that I am, by academic background, a scientist and an engineer...indeed, I presently serve as a member of the National Science Board. Hence, my view of the future is clearly influenced by the perspective.
- iii) Finally, these are clearly the views of a Provost...a chief operating officer of a university...which always raises a concern about getting trapped in the details of managing a complex institution such as a research university

Generally, any discussion of the challenges

before higher education is peppered with an assortment of "isms"...elitism, professionalism, racism...

But it seems appropriate to classify the

challenges of the decade into several more general areas

- i) the costs of excellence
- ii) pluralism and diversity
- iii) the "internationalization" of America
- iv) intellectual challenges
- v) the changing role of the research university in America as we enter the "Age of Knowledge" that will be our future

1. The costs of excellence

We face the challenge of making the transition from the growth era of the 1950s, 1960s, 1970s, characterized by increasing populations, resources, and prestige, to a limited-growth era of the 1980s and beyond.

We know all too well the impact of demographics...

The decline in the number of high school graduates...

The aging of our faculty...and the challenge with educating and recruiting the next generation of the scholars and teachers.

The effort and ability of more and more institutions to compete for the same pool of resources...

- State and federal support
- Private support
- Students
- Faculty

Suspicion: The Big Shakeout...

The absence of adequate resources to build and sustain excellence in all institutions, may lead to a process in which there is a shakeout...

Most institutions may tend to be pulled to a common level of quality...

However, those few institutions which have the critical mass of excellence...**and** which have the determination and capacity to sustain it, may be able to draw the best from the available resources of students, faculty, and funds and accelerate away from the pack...leaving the remainder of higher education to compete for a declining resource base.

HTS Theorem 1:

There has never been enough money to satisfy the legitimate aspirations of a truly enterprising faculty or administration.

HTS Theorem 2:

The cost of quality in teaching and research will rise faster than the total resource base of most institutions

DEVH Theorem:

Over a sufficiently long time span, none of our constraints are rigid. They can be managed or changed.

Instead of accepting resource limits as constraints on planning, we should instead view them as challenges to be overcome.

It is certainly the case that to achieve excellence in such a future, it will be necessary for institutions to focus their resources...
to not try to be all things to all people...
to stress quality over breadth and capacity...
and to build, as Fred Terman of Stanford put it,
"spires of excellence"

But I believe that something else will happen to many of our institutions. A case study may illustrate a possible evolutionary track for many of us...

A Case Study: Brave, New World

Last month our Regents approved our budget for the year ahead. In that budget,

- State appropriation = \$225 M
- Tuition and fees = \$217 M
- Federal Support = \$220 M
- (Also gifts were = \$70 M)
- (Auxiliaries = \$700 M
 - ...Medical Center
 - ...Housing
 - ...Intercollegiate Athletics)

Next year, we will find that

- Tuition will exceed state appropriation
 - ...becoming a **private** public university
- Federal will exceed state appropriation
 - ...becoming a **national** state university

And now if only our Development staff can increase private fund-raising to a similar share of the total...roughly \$230 M per year, we should be in pretty good shape...

While this "well-balanced" portfolio has certain advantages, such as resilience to the whims of

state and federal government, it also increases dramatically the importance of our ability to interact effectively with a remarkably broad array of constituencies...and this, in itself, is a very major challenge...

1'. Relationships with various constituencies

The modern research university must deal with and respond to many constituencies:

- Students and parents
- The public at large
- Federal, state, and local government
- Business, industry, labor
- Internal constituencies
 - Faculty
 - Staff
 - Students
 - Governing Boards (Regents and the like)

As we become every more dependent on these, we will face increasing pressures to establish our relevance to these constituencies.

Yet this poses several serious problems:

- i) The diversity--indeed, incompatibility--of the values, needs, and expectations of these various constituencies who all view higher education through quite different lenses (Blind men feeling an elephant...)
- ii) The increasing narrowness of the public's support for higher education..."What have you done for me lately?"
- iii) The tension between such responsiveness and the university's role as an independent and responsible critic of society.

2. Diversity and pluralism

There seems little doubt that America of the 21st century will probably be the most pluralistic, multicultural nation on earth...and perhaps in history...

Our nation will face a challenge of diversity and pluralism in the years ahead that will determine our strength and vitality .

As both a microcosm and leader of society at large, higher education has a special challenge and responsibility to develop effective models of multicultural, pluralistic communities.

Composition of college age population is also changing...

You've probably all memorized Harold Hodgkinson's data...

Today minorities comprise 14%...by 2000, 22% will be

Blacks and Hispanics...by 2020, 30%...

By the turn of this century, one-third of college age students will be underrepresented minorities.

Indeed, by the turn of the century, over 50% of K-12 students will be children of color (in California, over 50% will be Hispanic)

Indeed, by the late 21st Century, Hispanics will be the largest ethnic group in America

Less than 15% of new people entering the labor force of the 1990s will be white males.

NOTE: We must make special efforts to expand participation by these groups...not just because that is good social policy, but because we cannot afford to waste their talents!

In particular, we face the challenge of reaching out to increase the participation of those racial, ethnic, and cultural groups not adequately represented among our students, faculty, and staff--of taking "affirmative action" to compensate for the inequities faced by these groups in our society.

But simply providing access and encouraging participation is not enough. We face the challenge of building supportive environments which embrace, and sustain diversity as essential to the quality of our missions of teaching, research, and service.

We must strive to achieve new levels of understanding, tolerance, and mutual fulfillment for peoples of diverse racial and cultural backgrounds.

A Case Study: The Michigan Commitment

We have learned that at Michigan through the racial tensions that have developed on our campus over the past several years...just as they have on other campuses throughout America.

Unfortunately, it took several deplorable incidents of racism on our campus to wake us up to the reality that the challenge of diversity is not simply successful affirmative action programs... recruiting and retention and such...that is, access.

Our challenge goes far beyond this...in first recognizing that old vision of the campus as a melting pot of cultures and races is obsolete...and must be replaced by a vision of a highly pluralistic, multicultural community in which we achieve new levels of understanding, tolerance, and mutual fulfillment for peoples of highly diverse racial and cultural backgrounds...

In which people learn to respect and cherish one another for their differences...yet, at the same time are drawn together by certain fundamental values that we have in common.

We had to face some tough facts of life:

To make progress toward our goal of diversity, universities must move away from their present reactive, and uncoordinated efforts toward a more strategic approach designed to achieve long-term systemic change.

Efforts that focused only on affirmative action... that is, on access and retention...on representation...rapidly become mired down in bureaucracy and will inevitably fail...

Instead, we must strive to achieve permanent system change in our institutions.

We must link diversity and excellence as the two most compelling goals...recognizing that these goals are not only complementary, but will be tightly linked in the multicultural society characterizing our nation and the world in the years ahead.

In our efforts, we must take the long view that will require both patient and persistent leadership

While progress will require sustained vigilance and effort, it will also require a great deal of help and support.

To succeed, we need a very simple leadership agenda

that can be kept clearly focused and before the institution.

At Michigan we have taken the first important steps...

Commitment:

To recognize the importance of diversity and pluralism to the mission of the University, and to make a firm commitment to their achievement.

Representation:

To commit to the recruitment, support, retention, and success of underrepresented minority groups among our students, faculty, staff, and leadership

Environment:

To build on our campus an environment which seeks, nourishes, and sustains diversity and pluralism.

Some early results:

- i) Hired 16 new Black faculty this past year...
with 10 more offers out and under negotiation
- ii) Black freshman enrollments will be up 21% (373)
Hispanic enrollments up by 54% (195)
Total minority enrollments up by 23% (1059)
- iii) Black first year graduate students up by 100%
- iv) Retention numbers are coming up (55% to 60%)...
but still lag behind majority students (65% to 70%)
- iv) Racial harassment policy for students, faculty and staff
- v) Believe we are finally beginning to get people's attention...

As an aside, I would note that this year we estimate we are putting over \$34 million a year into minority student and faculty recruitment and retention as well as into a broad array of programs designed to build a true multicultural community on our campus.

Hence, it should be obvious that responding to the challenge of pluralism will require an extraordinary commitment on the part of our university... and higher education more generally

3. The Internationalization of America

Some signs...

Communications, travel, smaller world
Internationalization of commerce and industry...
Security and interdependence...
Nuclear weapons....

The "shrinking globe" phenomenon suggests that understanding cultures other than our own is necessary for good citizenship.

Some facts of life:

7-fold increase in international trade since 1970
Market for nearly all significant manufacturing industries has become world-wide
70% of goods we produce now must compete against merchandise from abroad
In slightly more than 5 years, US trade deficit has taken us from the world's largest creditor to its largest debtor nation.

Americans will no longer take its know-how and apply it to low-cost natural resources from third-world countries, turn it into products, and then sell it back to them--as we do in a hierarchical economy. Rather, we'll be only one member in a global dynamic economy with tremendous network interdependency between countries.

US is the destination of about half the world's immigrants
Probably 10 million this decade alone...
One-third of annual population growth is immigration

Indeed, now that native fertility rates have stood since mid-1970s at 1.8 (below replacement level of 2.0), immigration promises to become the main determinant of future population variability

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.

Historically, Europe has been the center of economic power...In the 21st Century, the Pacific Basin will be the center of economic power...Japan, China, Southeast Asia, US, USSR will be the major economic players in world.

As you may have seen, David Gardner in his recent editorial in Science quotes one of his faculty, Robert Scalapino as referring to the "21st Century" as the "Pacific Century"

US is no longer self-sufficient or self-sustaining. We are not immune to the shocks of the world society. We have never been more vulnerable.

4. Intellectual challenges

There are many who would contend that the most significant challenges before higher education today are intellectual in nature.

i) The debate over the balance between the disciplines and interdisciplinary teaching and scholarship.

It is certainly true that the academic disciplines today tend to dominate the modern university...whether in the areas of curriculum, resource flow, administration, or rewards.

Some would even contend that this deification of the disciplines may be leading the academy toward intellectual stagnation, trapped in the sterile pursuits of increasingly specialized studies.

There are many who believe that the most exciting work today is occurring not within the disciplines, but at the interfaces between them where there is a collision of ideas that leads to new knowledge.

ii) The debate over the importance and nature of a liberal education...the importance of moral education...

or "Allen Bloom vs. Bloom County"...

Bloom Country

Are our students indeed characterized by the philosophy of "literalism", first stated so succinctly by Opus...

"You're born...

You live...

You go on a some diets...

You die."

Is Allen Bloom correct when he states that we must return to a classical education... that without a knowledge of the great tradition and philosophy of our civilization, students cannot help to understand the order of nature and their place in it

Others such as Frank Rhodes maintain that the liberal arts today are only a very partial response to the responsibility of the contemporary university and that there is a need to develop a new paradigm of liberal learning through the

professions themselves.

Some such as Secretary Bennet have chastized higher education for failing to provide adequate attention to our student's intellectual and moral well-being

Others, such as Derek Bok agree that universities cannot avoid this responsibility since our institutions will inevitably affect the moral development of our students...but that we must take a broader, more comprehensive approach to moral education through academic programs, extracurricular activities, and the standards we demonstrate through dealing with ethical issues confronting our institutions.

iii) Of course, key in this debate is a suggestion that we must move beyond focusing simply on intellectual values in the education we provide...

Intellectual

The seeking of wisdom
Discipline of the mind
Respect for reasoned conclusions
Intellectual integrity
Freedom of inquiry

Character

Honesty
Integrity
Truthfulness
Nonviolence
Tolerance

Social

Compassion, Caring, Kindness
Tolerance and respect
Collegiality, civility, and community

The intellectual renewal of the role, mission, values, and goals of the university may be the key challenge before us.

5. The changing role of the university in modern society

The primary role of the research university in America appears to be shifting somewhat

Higher education in American has always played a variety of important roles.

- i) To provide an education for our citizens
- ii) to produce the scholars, professionals, and leaders needed by our society
- iii) to perform the research necessary to generate new knowledge
- iv) to provide service to society across a number of fronts that draw on our unique expertise
- v) and to act as an independent and responsible critic of society.

Public universities proceeded in three steps:

- i) Morrill Act: establish a new kind of American higher education characterized by its openness to new individuals and new ideas
- ii) Hatch Act: established Agricultural Experiment Stations
- iii) Smith-Lever Act: Established Cooperative Extension Service, bring to land grant colleges substantial responsibilities for research and public service.

In the past these three acts created a paradigm for American higher education, from which

both individual students and the nation as a whole have benefited enormously
Yet, even as these traditional roles continue, one can now discern an important shift in the priority given these roles for an important subset of higher education: the comprehensive research university.

The Challenge of Change

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 Reason, the Age of Discovery, the Industrial Revolution

Yet today is a time when our civilization is going through yet another such dramatic change...

Our traditional industry economy is shifting to a new knowledge-based economy, just as our industrial economy evolved from an agrarian society at the turn of the century.

A transition in which..

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

Some examples:

Industrial production is steadily switching away from material and labor intensive products and processes to knowledge intensive processes:

In a car, 40% materials, 25% labor...

In a chip, 1% materials, 10% labor, 70% knowledge!!!

Our nation's future has probably never been less constrained by the cost of natural resources. Future areas of growth are likely to come from the application of technologies that require few natural resources. Indeed, OTA study suggests that the optimal use of new technology could result in a 40% to 60% decline in the use of natural resources, even when there is rapid economic growth."

Increasing manufacturing production has come to mean decreasing blue collar employment!

In the 1920s, 1 of 3 was a blue-collar worker today 1 in 6 and dropping fast probably to about 1 in 10 within a couple of decades...

Indeed, UM economic studies suggest that less than 5% of General Motors' work force will be unskilled labor by the year 2000.

Recent Office of Technology Assessment report:
40% of all new investment in plant and equipment goes to purchase information technology

Fundamental transformation underway in economy that is "likely to reshape virtually every product, every service, and every job in United States."

Throughout the world, industrialized nations are making a transition from resource-intensive to knowledge-intensive societies...

In all developed countries, "knowledge" workers have already become the center of gravity of the labor force.

As Erich Bloch, Director of the National Science Foundation puts it, we have entered a new age, an "Age of Knowledge in a Global Economy"

The Knowledge Explosion...

New ideas and concepts are exploding forth at ever increasing rates...

Concepts which have shaken apart the

classical foundations of knowledge...
the theory of relativity
the uncertainty principle
the molecular foundations of life...
genetic engineering...

Radical critiques of fundamental premises,
scholarship, and culture by feminists,
minorities, and third world scholars.

Obscure, yet profound, new ways to
approach knowledge such as
Deconstructionism
Knowledge Engineering

In many fields, the knowledge base is doubling every
few years...

Furthermore, the typical college graduate of today will
likely change careers several times during a
lifetime...

It will be a future in which permanence and stability
are discarded in favor of flexibility and creativity...
in which the only certainty will be the presence of
continual change...

Hence a college education today 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.

It is rapidly becoming apparent that America's great
research universities, as the primary sources of
new knowledge and those who can apply it, will
hold the key to our collective prosperity and well-being
in the age of knowledge that is our future.

To provide knowledge:

*Contention: While the principal rationale behind much of higher
education will continue to be that of providing instruction, the
rationale behind America's research universities has
shifted to their role as the key sources of the knowledge necessary
to build and sustain the strength and prosperity of this nation.*

Our universities will face a period of unusual
opportunities during the 1990s...a period in which
our society will become ever more knowledge-
intensive...dependent upon educated people and
their ideas...and hence ever more dependent upon
research universities.

However, to respond to this challenge and opportunity
will require both a willingness to be venturesome...
and make some extraordinary commitments...

Another example...in this case involving the very technology
that is symbolic of the "Age of Knowledge"

A Case Study: The "Electronic" University

Some of us were convinced that the computer
would rapidly involve from simply a tool for
scientific computation or information
processing into an information technology
infrastructure absolutely essential to all
of our activities...from research to instruction
to administration

We set a rather

ambitious goal: To build the most sophisticated
information technology environment of any
Engineering college in the nation...an environment
that would continually push the limits of what could
be delivered in terms of power, ease of use, and

reliability to our students, faculty, and staff.
We sought a distributed intelligence, hierarchical computing system linking personal computer workstations, superminicomputers (and, more recently, minisupercomputers) mainframe computers, function specific machines, library access, a host of various servers, and gateways to international networks and facilities such as the NSF SCC, national data centers, etc.
Managed to recruit people with the vision and energy to make this a reality...
Doug Van Houweling
Lynn Conway
Doug Hofstadter
Carolyn Autry-Hunley
John Laird (SOAR)

Structures...
CITI
Center for Information Technology Integration
CMI
Center for Machine Intelligence
Cognitive Science and Machine Intelligence Lab
EXPRES
NSFnet (IBM, MCI)
NSF Supercomputer centers
NASA, Internet, National Research Network
MITN

Today...
i) roughly 2400 public student workstations
(including exciting programs like RESCOMP)
(funded through \$220-\$400/y fee...
gives us \$10 M/year of venture capital to play with)
ii) roughly 20,000 workstations
iii) student purchase plan...
MacTruck -- truckload sales...
Phase I: 2400 systems in 24 hours
Phase II: \$10 M of product in 24 hours
iv) in another week or two UM will announce one of largest installations of mainframes in world...
all networked together into an institution-wide file system (actually, the last of these machines came up last weekend) (two 3090-400Es and one 3090-600E)
v) 80,000 users on system
vi) UM has become the focal point in efforts to build the "interstate highway system" of information exchange...with EXPRES, NSFnet, internet, MITN,...coordinate access to NSF SCCs...
National Research Network

Tomorrow...
Now riding the "fourth wave" of the use of information technology...where the computer becomes not simply just an information processing tool, but rather a medium of communication, cooperation, and collaboration...an entirely new intellectual endeavor
Personal computing to "interpersonal computing"
As the result of the rapid spread of personal computers and computer networks, and the development of new insights into human cognition and group behavior, we are at the

threshold of a major shift in the underlying paradigms and uses of information technology. The shift will be from solo use of personal computers to group use of collaboration technology.

See you at EDUCOM-89 in Ann Arbor!!!

The future will indeed be a time of great challenge...
challenge...

- i) as more and more institutions would compete for a fixed or declining pool of resources...students, faculty, and financial resources
- i') as our diverse constituencies expected, indeed, demanded, more and more from our universities...
- ii) as the nature of American society changes rapidly... as we become ever more diverse and pluralistic...
- iii) as America becomes internationalized...part of the global community
- iv) and as changing intellectual currents--the nature of a liberal education--the balance between disciplinary and interdisciplinary scholarship--buffeted our institutions

But it will also be a time of unusual opportunity...

A period in which our society becomes ever more knowledge-intensive...dependent upon educated people and their ideas...and hence ever more dependent upon research universities

At Michigan we are convinced that American higher education

is facing a period of change similar to that which occurred in the latter half of the 19th century when the research university was born in response to the industrial age...

Largely in response to our industrial society, the university became increasingly viewed as the primary societal mechanism not only for the creation of new knowledge together with its transmission to the young, but also for the distribution of knowledge to all of society... an extension of its responsibilities in a quite literal sense as a principal theme of our great land grant universities.

Yet, it is apparent that our society is changing once again, evolving from a resource-intensive to a knowledge-intensive society. Is it therefore not appropriate to question whether our present concept of the research university, developed largely to serve industrial America, should similarly evolve in this post-industrial age?

The need for a new paradigm:

The challenges before higher education today, the challenges of the costs of excellence, of changing roles, of the tension of relating to diverse constituencies, of pluralism and diversity, of achieving a new spirit of liberal learning...all of these challenges suggest that a new paradigm of the research university in America is needed...

- i) One that can respond to the opportunities, responsibilities, and challenges before higher education today and in the future.
- ii) One that can address in creative new ways our current and future national and regional needs
- ii) One that can link and balance the various missions it must perform
 - Teaching, research, and service
 - Quality, breadth, and size
 - Undergraduate, graduate, professional education

- and faculty development
- iii) One that can span the public and private sectors
 - iv) One that can link together the many concerns and differing values of the diverse constituencies served by higher education
 - v) One that can respond to the challenge of pluralism in American society and the world community by linking together the complementary objectives of cultural diversity and academic excellence
Seeking out and encouraging those largely excluded from higher education
 - vi) Producing graduates who are both competent and committed, creative and compassionate

How do we respond to this future?

Let me suggest that this is the wrong question to ask...we must not simply "respond" ...we have done that far too often in the past.

In such a future, I believed it was simply not sufficient for our institutions to respond passively to these opportunities, challenges, and responsibilities. Rather, I believe that it was time that we seize control of our own destiny...that we chart a course to take us into the 21st Century.

And this will require, perhaps more than at any time in the recent history of higher education unusually strong leadership...leadership capable of identifying and articulating an exciting, challenging, and compelling mission for our institutions and then uniting our university communities...and those who support and depend upon us...in a common effort to pursue this mission.

And, I suppose that leadership is the key theme...for a mission of developing and implementing a new paradigm of the modern research university in America is nothing more nor less than a mission of leadership.

Roughly a century ago, universities were facing changes and challenges no less profound as America was changing from an agrarian to an industrial society... and they adapted by creating the research university as we know it today.

It may well be that the time has come for yet another change...and America and indeed, the world,... changes once again to a postindustrial society... a society intensely dependent upon knowledge

How of much of this vision of the future will

actually come to pass?

To be sure, change is not a predictable process...indeed one of the more interesting discoveries of contemporary physics has been that complex systems generally change in high nonlinear, sometimes discontinuous, and frequently random ways...

Hence there is always a certain hazard to predicting the future...

But then I always remember that old saying

"The best way to predict the future is to invent it!"..

And isn't that, after all, just the role of the University... the job of inventing the future?...