Vision 2010 Talk

Introduction

An Experiment

I've been asking for various groups to try to assess

the degree of change they believe the research university

must undergo during the 1990s in quantative terms,

…using a scale of 0 to 10

…with 0 meaning no change

…the status quo

…and 10 meaning radical change

…a total re-invention of the university

Most faculty tend to suggest relative modest change

…in the range of 3 to 4 on the 10-point scale

Most academic adminstrators, deans, EOs, and the like,

believe there will be more radical change

…of the order of 7 to 8 on the 10-point scale

While I was at the fall meeting of AAU presidents,

I asked many of these university presidents the same question.

…most responded with an answer of 20!

(Incidentally, that also is my own estimate

of the amount of change the American university

will experience in the decade ahead:

…20…on a 10-point scale!)

What are we…and how we get this way?

Images of the University

The Oxford don

U of M, Inc

"We don't know where we are…and where we are going…

so why are we in such a hurry to get there?"

Secrets of our success in years past…

It is true that Michigan is a prime example of

"a loosely-coupled, adaptive system,

with a growing complexity as its various components

respond to changes in the environment"

It is also true that Michigan is

"a learning organization".

…a holding company for 3,000 entrepreneurs

And that it has evolved over the years due to

    …creativity and energy of its faculty (as entrepreneurs)

    …the efforts of its many components to excell

    …a "transactional" culture where everything is up for
       negotiation

But, look where this has led us! UofM, Inc!

    (Note: Some of us know precisely where and what UM is today!)

    Diagram: UofM, Inc.
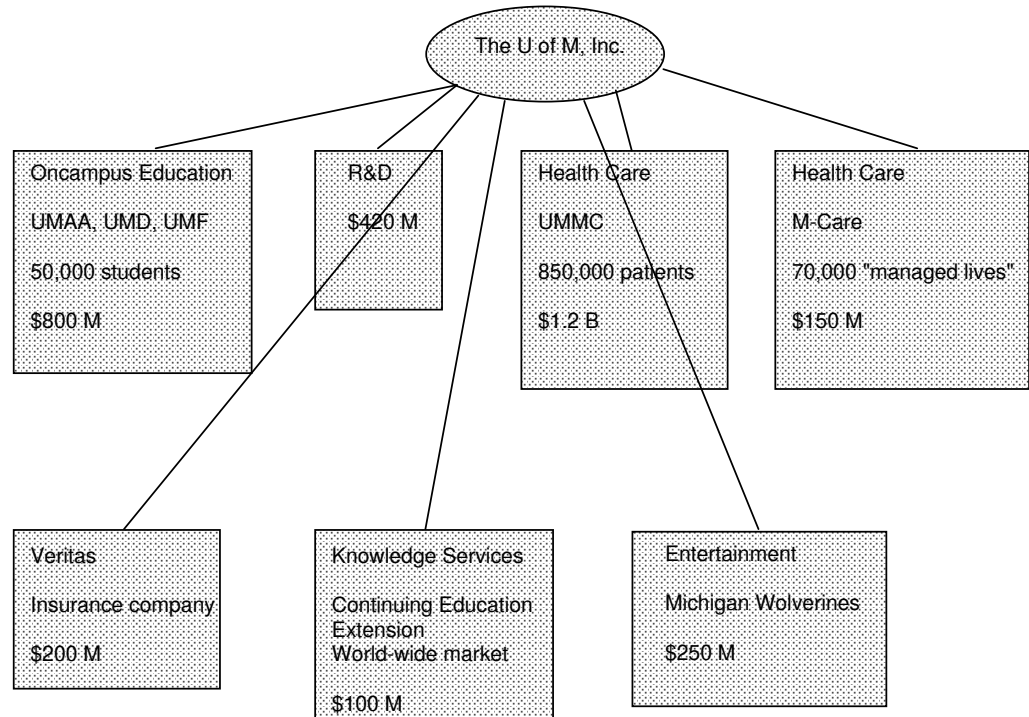
The Challenges of Change

    As one of civilization's most enduring institutions,

       the university has been quite extraordinary

       in its capacity to change and adapt to serve society.

       Far from being immutable, the university has changed

         quite considerably over time and continues to do so today.

       A simple glance at the remarkable diversity of institutions

         comprising higher education in America demonstrates

         this evolution of the species.

   The profound nature of the challenges and changes

       facing higher education in the 1990s seems comparable

       in significance to two other periods of great change

in the nature of the university in America:
the period in the late nineteenth century when
the comprehensive public university first appeared and
the years following World War II when the research university
evolved to serve the needs of postwar America.
Today we face challenges and opportunities similar to those
characterizing these two earlier periods of transformation.
 Many point to negative factors, such as
i) the rapidly growing costs of quality education and research during
a period of limited resources,
ii) the erosion of public trust and confidence in higher education,
iii) or the deterioration in the partnership characterizing
the research university and the federal government.
But I believe our institutions will be affected even more profoundly
by the powerful changes driving transformations in our society, including
i) the increasing ethnic and cultural diversity of our people;
ii) the growing interdependence of nations;
iii) the degree to which knowledge itself has become
the key driving force in determining economic prosperity,
national security, and social well-being;
iv) and, of course, the digital age, which is now revolutionizing
"knowledge businesses" such as higher education.
One frequently hears the primary missions of the university
referred to in terms of teaching, research, and service.
But these roles can also be regarded as simply the twentieth century
manifestations of the more fundamental roles of
creating, preserving, integrating, transmitting, and applying
knowledge.
From this more abstract viewpoint, it is clear that
while these fundamental roles of the university do not change
over time, the particular realization of these roles do change
--and change quite dramatically, in fact.
Consider, for example, the role of "teaching," that is,
transmitting knowledge.
While we generally think of this role in terms

of a professor teaching a class of students, who, in turn,
respond by reading assigned texts, writing papers,
solving problems or performing experiments,
and taking examinations, we should also recognize
that classroom instruction is a relatively recent form of
pedagogy.

Throughout the last millennium, the more common form of learning
was through apprenticeship. Both the neophyte scholar and
craftsman learned by working as apprentices to a master.
While this type of one-on-one learning still occurs today,
in skilled professions such as medicine and in advanced
education
programs such as the Ph.D. dissertation, it is simply too
labor-intensive for the mass educational needs of modern
society.

The classroom itself may soon be replaced by more appropriate
and efficient learning experiences.

Indeed, such a paradigm shift may be forced upon the faculty
by the students themselves. Today's students are members of
the
"digital" generation. They have spent their early lives
surrounded by
robust, visual, electronic media--Sesame Street, MTV, home
computers,
video games, cyberspace networks, and virtual reality. They
approach
learning as a "plug-and-play" experience, unaccustomed and
unwilling
to learn sequentially--to read the manual--and rather inclined to
plunge
in and learn through participation and experimentation.
While this type of learning is far different from the sequential,
pyramid approach of the traditional university curriculum,
it may be far more effective for this generation, particularly
when provided through a media-rich environment.

Hence, it could well be that faculty members of the twentieth-first
century

university will be asked to set aside their roles as teachers
and instead be become designers of learning experiences,
processes, and environments.

Further, tomorrow's faculty may have to discard the present style
of solitary learning experiences, in which students tend
to learn primarily on their own through reading, writing,
and problem solving. Instead they may be asked to develop
collective learning experiences in which students work together
and learn together with the faculty member becoming more
of a consultant or a coach than a teacher.

One can easily identify other similarly profound changes occurring
in the other roles of the university.

The process of creating new knowledge--of research and scholarship
--is also evolving rapidly away from the solitary scholar
to teams of scholars, perhaps spread over a number of
disciplines.
 Indeed, is the concept of the disciplinary specialist really
necessary
--or even relevant--in a future in which the most interesting
and significant problems will require "big think"
rather than "small think"?

Who needs such specialists when intelligent software agents
will soon be available to roam far and wide through robust
networks
containing the knowledge of the world, instantly and effortlessly
extracting whatever a person wishes to know?

So, too, there is increasing pressure to draw research topics
more directly from worldly experience rather than
predominantly
from the curiosity of scholars.

Even the nature of knowledge creation is shifting somewhat
away from the analysis of what has been to the creation
of what has never been--drawing more on the experience
of the artist than upon analytical skills of the scientist.

The preservation of knowledge is one of the most rapidly changing
functions
of the university.

The computer--or more precisely, the "digital convergence" of various

media from print to graphics to sound to sensory experiences through

virtual reality--has already moved beyond the printing press in its

impact on knowledge.

Throughout the centuries the intellectual focal point of the university
has been its library, its collection of written works preserving
the knowledge of civilization.

Yet today, such knowledge exists in many forms--as text, graphics,
sound, algorithms, virtual reality simulations--and it exists
almost literally in the ether, distributed in digital
representations
over worldwide networks, accessible by anyone, and certainly
not
the prerogative of the privileged few in academe.

Finally, it is also clear that societal needs will continue to dictate
great changes in the applications of knowledge it expects from
universities.

Over the past several decades, universities have been asked to play
the lead in applying knowledge across a wide array of activities,
from providing health care, to protecting the environment,
from rebuilding our cities to entertaining the public at large
(although it is sometimes hard to understand how intercollegiate
athletics represents knowledge application).

This abstract definition of the roles of the university have existed
throughout the long history of the university and will certainly
continue to exist as long as these remarkable social institutions
survive.

But the particular realization of the fundamental roles of knowledge
creation,
preservation, integration, transmission, and application will continue
to change in profound ways, as they have so often in the past.

And hence, the challenge of change, of transformation, is, in part,
a necessity simply to sustain our traditional roles in society.

Alternative Paradigms

We face a particular dilemma in developing more revolutionary models
for the American university because of a challenges mentioned early
in this talk.

The pace and nature of the changes occurring in our world today
have become so rapid and so profound that social institutions
such as university have great difficult in sensing and understanding
the true nature of the changes buffeting them about,
much less in responding and adapting adequately.

Hence any process aimed at articulating and analyzing new models
for the university must do so with the recognition that these models
must themselves adapt to an environment of continual change.

With this caveat in mind, let us consider several of the more provocative
themes suggested by colleagues across the University
to illustrate the broad range of possibilities for the university
of the twenty-first century.

These include
the state-related, but world-supported, university
A university with a strong public character, but supported
primarily through resources it must generate itself (e.g., tuition,
federal grants, private giving, auxiliary enterprises), not through
general purpose appropriations.
the "world" university
As a new world culture forms, a number of universities will
evolve into learning institutions serving the world, albeit within
the context of a particular geographical area (e.g., North
America).
the diverse university (or the "uni-di-versity")
A university drawing its intellectual strength and its character
from the rich diversity of humankind, providing a model for our
society of a pluralistic learning community in which people
respect and tolerate diversity even as they live, work, and learn
together as a community of scholars.
the cyberspace university
A university that spans the world (and possibly even beyond) as
a robust information network linking together students, faculty,
graduates, and knowledge resources.
the creative university

As the tools for creation become more robust (e.g., creating materials atom-by-atom, genetically engineering new life forms, or computer-generating artificial intelligence or virtual reality), the primary activities of the university will shift from a focus on analytical disciplines and professions to those stressing creative activities (i.e., "turning dreams into reality").

the divisionless university

The current disciplinary (and professional) organization of the University is viewed by many as increasingly irrelevant to their teaching, scholarship, and service activities. Perhaps the university of the future will be far more integrated and less specialized through the use of a web of virtual structures which provide both horizontal and vertical integration among the disciplines and professions.

the university college

It seems clear that we need to develop a new paradigm for undergraduate education within the complex environment provided by a comprehensive research university. This "university college" should draw on the intellectual resources of the entire university: its scholars, libraries, museums, laboratories, graduate and professional programs, and its remarkable diversity of people, ideas, and endeavors.

the university as capstone of a lifelong sequence of education

Since education will increasingly require a lifetime commitment, perhaps the University should reinvent itself to span the entire continuum of education, from cradle to grave. It could form strategic alliances with other components of the educational system, and commit itself to a lifetime of interaction with its students/graduates, providing them throughout their lives with the education necessary to meet their changing goals and needs.

the "laboratory" university ("the university within the university")

Could we create within our institutions a "laboratory" or "new" university that would serve as a prototype or test bed for possible features of the University of the twenty-first century? The "New U" would be an academic unit, consisting of students, faculty, and programs, with a mission of providing the

intellectual and programmatic framework for continual experimentation.

the university as a "knowledge server"

Perhaps the triad mission of the university--teaching, research, and service--is simply the twentieth century manifestation of the more fundamental roles of creating, preserving, transmitting, and applying knowledge. While this fundamental "knowledge server" definition of the university does not change over time, it seems clear that the particular realization of these roles is changing rapidly (e.g., digital convergence, collective learning, strategic research).

The Process of Change

For the type of institutional transformation necessary to move
toward the major paradigm shifts that will likely characterize
higher education in the years ahead, we will need
a more strategic approach capable of staying the course
until the desired changes have occurred.
 Indeed, many institutions have already embarked on major transformation
agendas similar to those characterizing the private sector.
Some even use similar language as they refer to their efforts
to "transform," "restructure," or even "re-invent" their institutions.
But, of course, herein lies one of the great challenges to universities,
 since our various missions and our diverse array of constituencies
give us a complexity far beyond that encountered in business or
government.
As a result, the process of institutional transformation
is necessarily more complex.
Experience demonstrates that the process of transforming
an organization is not only possible but also understandable
and even predictable, to a degree.
The revolutionary process starts with an analysis of
the external environment and the recognition that radical change
is the organization's best response to the challenges it faces.
The early stages are sometimes turbulent, marked by conflict,
denial, and resistance. But gradually, leaders and members

of the organization begin to develop a shared vision of what their

institution should become and to turn their attention to the

transformation process.

In the final stages, grass-roots incentives and disincentives

are put into place to create the market forces to drive institutional

change; and methods are developed to measure the success of the

transformation process. Ideally, this process never ends.

So how does an institution as large, complex, and tradition-bound

as the modern research university go about transforming itself.

Historically we have accomplished change using a variety of

mechanisms:

i) "buying" change with additional resources;

ii) laboriously building the consensus necessary

for grassroots support of change;

iii) changing key people; iv) finesse;

v) by stealth of night;

vi) "Just do it!," that is, top-down decisions followed

by rapid execution (following the old adage

that "it is better to seek forgiveness than to ask permission").

Concern

The Michigan entreprenurial culture,

at least with the present set of rules and constraints,

has led to an institution with the following problems:

…it has diluted its "core businesses" with lots of entreprenurial efforts

…it has become so complex that few even know what it is

…the difficulty in allowing out-moded and obsolete activities

to disappear has put us very much at risk

In a sense, we have become sufficiently encumbered with

processes, policies, procedures, practices of the past

that our very best people, our most exceptional and creative people

no longer determine the direction of the University.

…funding limitations

...resource allocation (incremental budgeting which preserves the past)

...personel policies

...disciplinary dominance

...consensus gridlock

JJD approach is, in reality, natural evolution

...with constraints to preserve fundamental values and mission

...but freeing most creative people to drive the institution

That is, to attract, retain, and nurture extraordinary people

and let them drive the University.

This is why Vision 2017 is well-defined in the center,

and blurry on the edges...

suggesting that the new paradigms will be created

by our very best people...

The basic approach is to

i) Attract and retain exceptional people of true creativity

ii) To remove constraints on creativity and adaptability,

to create a fault-tolerant system

iii) But to constrain evolution to protect our fundamental missions,

character, and values.