Fixing the Fragmented University:
A View from the Bridge

James J. Duderstadt

President Emeritus

University Professor of Science and Engineering

The University of Michigan

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Introduction

This chapter addresses the challenge of unifying the fragmented university from the perspective of the university president. The contemporary university finds itself increasingly compartmentalized by the specialization of academic departments and faculty interests, the decentralization of budgets and resources, the nomadic character of the faculty in a highly competitive marketplace, technologies allowing the creation of scholarly communities detached from campuses and academic institutions, and by the ever more numerous and complex missions demanded by a diverse multiplicity of clients and stakeholders. While this increasingly decentralized nature of the university allows it to function as a loosely coupled adaptive system, evolving in a highly reactive fashion to its changing environment, it can also undermine the ability of the university to respond effectively to the broader needs and demands of society, particularly in its core missions of student learning and social engagement.

While management tools and governance structures provide useful tools in unifying the university, budgets and organization can only accomplish so much. Far more important is leadership, particularly from the president, capable of embracing those values that pull a fragmented community together to address a common and public purpose.

After a brief review of the various forces driving fragmentation of the university and the impact of this decentralization on the institution's character and mission, this chapter then turns to a discussion of possible remedies, drawing heavily from the experience of leading one of the nation's largest public universities during a period of significant transformation. Some consideration will be given to the traditional methods university leaders have used to pull together their institutions, e.g., the allocation of resources, introducing faculty incentives, and modifying organizational structures. However most attention will be devoted to bolder approaches aimed at enabling universities to better serve a rapidly changing society.

The Forces and Implications of Fragmentation

The intellectual fragmentation of the university was driven very much by the rapid evolution of the scientific method in the late 19th century, as specialization and new disciplines were necessary to cope with the explosion of knowledge. Academic disciplines began to dominate the university, developing curriculum, marshaling resources, administering programs, and doling out rewards. Both the organization and the resource flows of the university became increasingly decentralized to adapt to the ever more splintered disciplinary structure. The increasingly narrow focus of scholarship created diverse faculty subcultures throughout the university–humanities, the natural and social sciences, professional schools–widening still further the gap among the disciplines and shifting faculty loyalties away from their institutions and toward small peer communities that became increasingly global in extent.

Decentralization has also been driven by the rapidly changing nature of how universities are financed. In earlier times, the responsibility for generating the resources necessary to support the activities of the university was highly centralized. Public institutions were primarily supported by state appropriations, while private institutions were supported by private giving and student fees. Since these resources usually increased from year to year, institutions relied on incremental budgeting, in which the central administration simply determined how much additional funding to provide academic units each year. In today's brave new world of limited resources, battered by seriously strained state budgets and turbulent financial markets, the resources supporting most public and private universities are no longer collected centrally through appropriations or gifts. Rather they are generated locally at the level of academic units and even individual faculty members, competing in the marketplace for students (and hence tuition dollars), research grants and contracts (which flow to principal investigators), gifts (which are given to particular programs or purposes), and other auxiliary activities (clinical care, executive management education, distance learning, and entertainment–e.g., football). Little wonder that most universities are moving toward highly distributed budget models, in which authority and accountability for revenue generation and cost containment are delegated to

individual academic and administrative units, further decentralizing the university. (Duderstadt and Womack, 2003).

The growing pressures on faculty not only to achieve excellence in teaching and research but also to generate the resources necessary to support their activities are immense. Today's faculty members are valuable and mobile commodities in a highly competitive marketplace that enables them to jump from institution to institution in search of an optimal environment to conduct their research, teaching, and other professional activities. They are well aware that their careers–their compensation, promotion, and tenure–are determined more by their research productivity, publications, grantsmanship, and peer respect, than by other university activities such as undergraduate teaching and public service. This reward climate helps to tip the scales away from teaching and public service, especially when quantitative measures of research productivity or grantsmanship replace more balanced judgments of the quality of research and professional work. Little wonder that faculty loyalties have shifted from their institutions to their disciplinary communities. Faculty careers have become nomadic, driven by the marketplace, hopping from institution to institution in sea. As one junior faculty member exclaimed in a burst of frustration: "The contemporary university has become only a holding company for research entrepreneurs!"

The academic organization of the university is sometimes characterized as a creative anarchy. Faculty members possess two perquisites that are extraordinary in contemporary society: academic freedom, which allows faculty members to study, teach, or say essentially anything they wish; and tenure, which implies lifetime employment and security. Faculty members do what they want to do, and there is precious little administrators can do to steer them in directions where they do not wish to go. More abstractly, the modern university has become a highly adaptable knowledge conglomerate, both because of the diversity of the needs of contemporary society and because of the varied interest, efforts, and freedom of its faculty. It is characterized by a transactional culture, in which everything is up for negotiation. The university administration manages the modern university as a federation. It sets some general ground rules and

regulations, acts as an arbiter, raises money for the enterprise, and tries—with limited success—to keep activities roughly coordinated.

Although this frequently resembles organizational chaos to outsiders, in reality the entrepreneurial university has developed an array of structures to enable it to better interact with society and pursue attractive opportunities. Yet, while this organization has proven remarkably adaptive and resilient, particularly during periods of social change, it all too frequently tends to drift without the engagement or commitment of its faculty, students, and staff to institution-wide priorities.

For example, many contend that today's university has diluted its core mission of learning, particularly undergraduate education, with a host of entrepreneurial activities. It has become so complex that few, whether on or beyond our campuses, can comprehend its reality. Even in the face of serious constraints on resources that no longer allow it to be all things to all people, the university continues to have great difficulty in allowing obsolete activities to disappear. It has become sufficiently encumbered with processes, policies, procedures, and past practices so that its best and most creative people are frequently disengaged from institution-wide priorities.

More fundamentally, there is a growing concern that the fragmented university has lost the coherence of its educational, scholarly, and service activities. Clearly the undergraduate curriculum has acquired a shopping mall character, reflecting more what faculty are interested in teaching that what our students need to learn. Universities offer far too many courses and majors, again reflecting the deification of the disciplines at the expense of the more coherent objectives of a college education.

The integration of knowledge is not only key to the vitality of scholarship, but also to fulfilling the public purpose of the university. Perhaps E.O. Wilson put it best in his provocative book, *Consilience*, "Most of the issues that vex humanity daily cannot be solved without integrating knowledge from the natural sciences with that of the social sciences and humanities. Only fluency across the boundaries will provide a clear view of the world as it really is, not as seen through the lens of ideologies and religious dogmas or commanded by myopic response to immediate needs." (Wilson, 1998).

What To Do?

So how should university administrations–and particularly university presidents–approach the challenge of taming this fragmentation and unifying the university into a more coherent focus on its fundamental values, mission, and public purpose? First it is important to acknowledge several realities of the contemporary university.

The contemporary university today has become one of the most complex institutions in modern society—far more complex, for example, than most corporations or governments. It is comprised of many activities, some nonprofit, some publicly regulated, and some operating in intensely competitive marketplaces. It teaches students; conducts research for various clients; provides health care; preserves and distributes cultural richness; engages in economic development; enables social mobility; and provides mass entertainment (athletics). And, of course, the university also has higher purposes such as preserving our cultural heritage, challenging the norms and beliefs of our society, and preparing the educated citizens necessary to sustain our democracy.

The University of Michigan provides an excellent example of this complexity: With an annual budget of over $4.5 billion, an endowment of $5 billion, and over $10 billion under active investment management, the UM, Inc. would rank roughly in the middle of the Fortune 500 list. Beyond educating over 55,000 students at any given time, the University also conducts over $800 million of research each year, operates a massive health-care empire treating over 1.5 million patients a year, engages in knowledge services on a global basis, and provides entertainment to millions (think Michigan Wolverines).

Clearly no president nor executive team nor governing board can span the range of expertise and experience to manage in detail such an array of activities. Most knowledge and experience in universities resides at the grassroots level, as does creativity and value-added. Even when augmented by knowledgeable executives, the central administration really doesn't understand the details of much of the "business" of the university. Beyond the disciplinary expertise of academic leadership at the level of departments, schools, and colleges, other

activities such as federally sponsored research, clinical programs, student services, information technology, investment management, and even intercollegiate athletics require highly specific, competent, and experienced management. Hence delegation of authority and decentralization of responsibility become essential.

Second, despite the fact that university presidents have executive responsibilities for all of these activities and purposes, the position itself has surprisingly little authority. The president reports to a governing board of lay citizens with very limited understanding of academic matters and must lead, persuade, or consult with numerous constituencies such as faculty and students that tend to resist authority. Hence the university presidency requires an extremely delicate and subtle form of leadership, sometimes based more on style than substance, and usually more inclined to build consensus rather than take decisive action.

Third, universities are quite unusual social institutions in the priority they give to individual over institutional achievement. Their culture is a highly competitive meritocracy, in which students and faculty are encouraged–indeed, expected–to push to the limits of their ability. While the sum of these individual activities can have great impact, the university itself is simply not designed to optimize institutional agendas.

Finally, one of the great strengths of American higher education is its remarkable diversity both in the nature of its colleges and universities and how they perceive and pursue their missions. For example, community colleges and regional four-year public universities tend to be closely tied to the needs of their local communities. They are the most market-sensitive institutions in higher education, and they tend to respond very rapidly to changing needs. Liberal arts colleges tend to respond to change in somewhat different ways, ensuring that their core academic mission of providing a faculty-intensive, residential form of liberal education remains valued and largely intact. The research university, because of the complexity of its multiple missions, its size, and its array of constituencies, tends to be most challenged by change. While some components of these institutions have undergone dramatic change in recent years, notably those professional schools tightly coupled to society such as medicine and

business administration, other parts of the research university continue to function much as they have for decades.

Recognizing the importance of this great diversity in character and mission is essential to developing effective approaches to addressing the fragmentation characterizing particular institutions. While striving to tame the anarchy of disciplinary fragmentation may be an appropriate strategy for some institutions such as liberal arts colleges, for others such as the comprehensive public research university, engaged in not only undergraduate, graduate, and professional education and basic and applied research and scholarship, but as well in activities such as clinical care, technology transfer, international development, and social welfare, one must take great care that initiatives aimed at responding to the demands of the moment for public (and political) accountability and focus do not trample upon the complex intellectual structures for generating knowledge and serving civilization that have taken centuries to evolve.

With this as background, let us turn briefly to a consideration of the traditional methods university presidents have used to rein in the centrifugal forces of fragmentation and lead their institutions toward important objectives. Usually at the top of the list is the control of resources and budgets to establish priorities among academic programs and activities. A skillful president can bias the university system for resource allocation such that new proposals tend to win out over those that aim to sustain or strengthen established programs. While this requires some intellectual good taste on the part of both president and provost, it is an extremely important device for navigating the university toward the future rather than drifting along on currents from the past. During good times with growing budgets, this amounts to picking winners and losers. During hard times, when resources are declining, this can amount to lifeboat decisions about which units will survive and which may be discontinued. Although most universities find it important to put into place well-defined policies for academic program reduction and discontinuance, with ample mechanisms for consultation, in the end the president usually shoulders the blame for these decisions.

Unfortunately, such control is weakened considerably by an organizational structure along disciplinary lines that has been nurtured over the years by our incremental style of resource allocation, in which units and activities simply continued unless a very good case could be made for doing something else. Most experience suggests that while these units are capable of modest internal change, they generally feel threatened by and resist broader institutional agendas. They make strategic resource allocation very difficult, as evidenced by the cumbersome, frustrating nature of efforts to reduce or eliminate programs. Furthermore, since most universities have so little budget flexibility, there is usually not sufficient discretionary capacity to have major impact.

Perhaps a more effective tool involves the appointment of key academic leadership, particularly at the level of provosts and deans. While the provost, as chief academic officer (and at many institutions, also chief budget officer) is important, even more critical is the selection and culture of deans. Achieving an appropriate balance between competitiveness on behalf of one's academic unit and collegiality with other deans on institution wide objectives is a challenge. In a sense, deans serve as brokers between the two cultures of the university: the faculty (collegial, center-periphery, colleagues, peer respect) and the administration (hierarchical, top-down, bosses, performance evaluations). Since deans must represent the views of the faculty and never be seen as losing, they can become quite conservative, seeking to minimize risk and maximize flexibility. Furthermore, it is sometimes difficult to recruit the best people unless you give them full control of the reins, particularly in deans-driven universities like Michigan.

What about "the vision thing"? To be sure, there have been many examples of university presidents able to capture the commitment of an institution to pursue a compelling vision. Yet the creative anarchy arising from a faculty culture that prizes individual freedom and consensual decision-making poses a considerable challenge to visionary leadership. Most big ideas from top administrators are treated with either disdain or ridicule (this too shall pass…). The same usually occurs for formal strategic planning efforts, unless, of course, they are attached to clearly perceived budget consequences or faculty rewards.

The academic tradition of extensive consultation, debate, and consensus building before any substantive decision is made or action taken poses a particular challenge in this regard, since this process is frequently incapable of keeping pace with the profound changes swirling about higher education. Most visions are usually trapped within the framework of existing constraints and are rarely capable of grappling with major institutional transformation.

The reality is that major change is rarely motivated by excitement about a future vision. Rather it occurs as a response to some perceived crisis or threat, for example, a sustained period of cuts in state appropriations or a shift in federal R&D funding priorities can provide clever academic leaders with an opportunity to trigger change. Of course, it is important not to scare folks into their foxholes; they need some sense of security and confidence that they are well armed to defend themselves. However as one of my colleagues put it, if you believe change is necessary and you do not have a convenient wolf at the front door, then you had better invent one.

Taking a Bolder Approach

At the University of Michigan, both because of the institution's size and its strong tradition of decentralization, we found the traditional tools used to pull together and steer the fragmented university feeble and inadequate, particularly during a time of significant change (e.g., social diversity, globalization, and knowledge-intensive economies). In developing new approaches to unifying the fragmented university, we accepted at the outset two important assumptions.

First, we believed that the decentralized organization of the institution was a positive and valuable characteristic capable of unleashing great creativity and achievement and should not be abandoned. As Susan Lohmann suggests, the structures of the western university have evolved over a millennium "to do some very heavy lifting, and they produce a public good of great value. They enable the specialized and creative inquiry of individuals; the collective vetting, pooling, and accumulation of research results; the posting of research results on a global information commons; the protection of the university from the outside world and the inhabitants of the university from each other; and the

underpinning of the scientific process, allowing scientific progress. The structures that do all of this hard and hidden work should not be given up lightly." (Lohmann, 2005). We saw our challenge as university leaders as harvesting the good that bubbles up from the grassroots activities of the faculty, students, and staff, not to corral or dictate their behavior from above.

Second, rather than adhere to the traditional missions of higher education such as teaching, research, and service, we sought instead to protect what we viewed as the unique role of the University of Michigan. In this sense, we attempted to define and sustain Michigan's institutional saga, a term that noted higher education scholar Burton R. Clark used to refer to those longstanding characteristics, values, traditions, and practices evolving over many generations to determine the distinctiveness of a university. (Clark, 1970). Clark's view is that "Universities develop over time an intentionality about institutional life, a saga, which then results in unifying the institution and shaping its purpose. While all colleges and universities have social roles, some have purposively reshaped these into compelling missions that over time achieve sufficient success and acclaim that they become an embracing saga."

This is an important point for those attempting to address challenges such as the fragmentation of the contemporary university. If such efforts are carefully aligned with the institutional saga of a university, for example, its particular style of pedagogy or its approach to social engagement (e.g., the land-grant mission), then there is hope of success. However actions taken in ignorance or disregard of an institution's saga are likely to bounce off without making a dent–or worse, cause considerable damage.

It was our sense that the University of Michigan's combination of quality, breadth, and capacity, coupled with the flexibility provided by its unique constitutional autonomy, had allowed the university to be unusually agile and innovative. We saw Michigan's institutional saga throughout history as one of a trail-blazer, launching the experiments and taking the risks to define the future of the public university, from our first president Henry Tappan's efforts in 1850 to build in the Michigan frontier the first true research university in America (in the spirit of von Humboldt) to the building of the Internet in the 1980s and the

more recent successful defense of the importance of social diversity to higher education in the landmark U.S. Supreme Court case of 2003.

Perhaps as a consequence of this pioneering spirit, we tended to look at chronic issues such as declining state funding, government interference, and marketplace competition less as immovable barriers and more as challenges that could be transformed into opportunities to pull together a fragmented academic community with a sense of common purpose in controlling its destiny and preserving its most important values and traditions.

Organizational Strategies

While specialization and academic departments tend to dominate the educational activities of the university, other missions can reach across disciplinary boundaries. For example, research grants flow to principal investigators or research groups rather than academic departments. Many funding agencies such as the National Science Foundation and the National Institutes of Health intentionally structure their grants to encourage the interdisciplinary work necessary to address many of the most significant scientific challenges. This cross-flow of sponsored research dollars counters to a degree the vertical flow of instructional dollars through the disciplines and creates a matrix organization. In many large research universities, the magnitude of research funding is comparable to instructional support (e.g., at Michigan, sponsored research activity is over $800 million compared to $1.2 billion for instructional activities), creating powerful pressures that counter the centrifugal forces of the disciplines.

Our university has had a long tradition of interdisciplinary research centers and institutes that reach across disciplinary boundaries. However, we needed to go further than this, building alternative structures–physical, organizational, virtual–that drew together students, faculty, and staff. We invested heavily in new facilities aimed at integrating disciplinary learning and scholarship, e.g., the $70 million Media Union, an integrative center drawing together students and faculty to explore the application of rapidly evolving technology in transforming learning and scholarship; the $350 million Life

Sciences Institute integrating the biological, health, and nanosciences, creative disciplines; and an entire campus (the university's North Campus) co-locating and integrating the creative disciplines (music, performing and visual arts, architecture, engineering, information sciences, and design). Similarly an effort was made to establish administrative "affinity clusters" at the level of the provost that drew together basic disciplines and key professional schools, e.g., linking the social sciences more strongly with professional disciplines such as business, education, and social work; the humanities and classical studies with law; and the sciences more closely with applied science professions such as engineering and medicine.

Since the rapid evolution of information technology had undermined the traditional organization hierarchy by allowing point-to-point interaction (e.g., e-mail, instant messaging, multicasting, podcasting), we sought a more strategic use of this technology to reorganize the university into more contemporary forms. The launch of major technology projects such as the University's management of the Internet backbone, the Sakai project to develop the open-source middleware platform for learning and scholarship, and most recently the Google project to digitize and distribute the complete holdings of our libraries (8 million volumes) were examples of strategic initiatives aimed at using this powerful and rapidly evolving technology to integrate the activities of the university and propagate its knowledge assets on a global scale.

We faced a quandary similar to other organizations in business and government: Should we centralize management to take advantage of economies of scale, standardization, and globalization? Or should we decentralize, seeking autonomy, empowerment, and flexibility at the level of unit execution, while encouraging diversity, localization, and customization? Our experience suggests both … and neither. There is no unique way to organize knowledge-based activities, although it is likely that most colleges and universities are currently far from an effective or optimal configuration. Furthermore, flexibility and adaptability are the watchwords for any such organization during a time of extraordinarily rapid technological change. The challenge is to orchestrate and coordinate the multiple activities and diverse talent on campus.

The key to achieving this is to build layered organization and management structures. At the highest, centralized level one should seek a clear institutional vision, driven by broadly accepted values, guided by common heuristics, and coordinated through standard protocols. Below this at the level of execution one should encourage diversity, flexibility, and innovation. In a sense, institutions should seek to centralize the guiding vision and strategy, that is, determining "where" the institution should head, while decentralizing the decision process and activities that determine "how" to achieve these institutional goals. Put another way, universities should seek to synchronize rather than homogenize their activities. Rather that obliterating silos of activity, one should use standard protocols and infrastructure to link them together, creating porous walls between them. (Sawney, 2000).

Resource Strategies

The more constrained resource base facing higher education in recent years has already forced many institutions to abandon traditional approaches such as incremental budgeting. Moving from crisis to crisis or subjecting institutions to gradual starvation through across-the-board cuts simply are not adequate long-term strategies. Instead universities must develop the capacity to set institution-wide priorities and allocate resources to these priorities. Since in the fragmented university most revenues are generated and costs incurred at the unit level, centralized resource management has become problematic. Yet moving to the other extreme of totally decentralized resource management, e.g., "every tub on its own bottom", loses the capacity to steer the ship, to address university-wide missions and priorities. Many universities, including Michigan, have moved instead to hybrid budgeting approaches such as responsibility center management that shares resource allocation decisions through a partnership between academic units, administrative units, and the central administration. In our case, we allowed units to keep the resources they generated, making them responsible for meeting the costs they incurred, and then levied a tax on all expenditures along with the state appropriation to provide a central pool of resources necessary to support central operations (such

as the university library) while enabling the university to address key institution-wide priorities and missions.

A somewhat more Machiavellian approach is to take advantage of market forces at grassroots level by exploiting what one of my colleagues calls the "fish foodball theory" of faculty behavior. Normally faculty activities are randomly distributed, much like fish swimming in an aquarium. However just as fish will suddenly align to go after a ball of food suspended in their tank, faculty members in the entrepreneurial university will quickly reprioritize their efforts to go after new resources, even if relatively modest in size. For example, to encourage faculty members to more aggressively seek sufficient indirect cost recovery on sponsored research grants, we simply provided them with a small account of purely discretionary funds proportionate to their indirect cost recovery (e.g., 5%). Even though indirect costs frequently came off the top of grants at the expense of research funding, these modest incentives (our "faculty foodball") rapidly increased indirect cost recovery and eventually stimulated sufficient grant activity to propel Michigan to national leadership in federal research funding.

Yet another example involved the University's effort to dramatically increase the presence of underrepresented minority faculty on our campus, a component of a far more ambitious effort to achieve social diversity on our campus known as the Michigan Mandate. (Duderstadt, 2000). Traditionally, university faculties have been driven by a concern for academic specialization within their respective disciplines. Such priorities all too often lead to replacement searches rather than enhancement searches. To achieve the goals of the Michigan Mandate, the university had to free itself from the constraints of this traditional perspective. Therefore, the central administration sent out the following message to the academic units: be vigorous and creative in identifying minority faculty candidates who can enrich the activities of your unit. Do not be limited by concerns relating to narrow specialization. Do not be concerned about the availability of a faculty hunting license within the academic unit. The principal criteria for the recruitment of a minority faculty member should be the absolute quality of candidates and their potential contribution to the university

itself. If so, both the base and startup funding necessary to recruit the candidate would be provided by the central administration.

There was another shoe to drop in this initiative. Since we did not have any sudden new wealth to support such hiring, instead we simply wrote I.O.U.'s to the successful programs as they hired new minority faculty. At the end of the year, we totaled up these commitments and then subtracted them from the top of the university budget for the next year. Through this mechanism those programs successful in recruiting new minority faculty would effectively be subsidized by those who sat on the sidelines. For example, it took several years before our large Department of Internal Medicine realized that its failure to recruit minority faculty resulted in them actually subsidizing the expansion of our Department of English Language and Literature into exciting new areas such as Caribbean literature.

A final example is provided by efforts to shift resources from ongoing disciplinary activities to new university-wide initiatives. In the 1980s, the university began to reallocate each year 1% of its base academic budget into a priority fund to support new initiatives. Although small as one-time funds, these were reallocations that effectively reduced the base support of ongoing programs by 99%, 98%, 97%, shifting very significant resources from the status quo to new initiatives. This effort was expanded during the 1990s with additional funding from private gifts and directed toward funding initiatives addressing institution-wide priorities such as undergraduate education, diversity, interdisciplinary scholarship, and international programs. Usually the approach was to launch competitive grants programs in a particular area to stimulate activity at the grassroots faculty level. Many of these projects were sufficiently successful that they were later mainstreamed with base funding and additional external funding.

The lesson to be learned here is that academic leadership is most effective and powerful if it taps into the energy, interests, and creativity of the faculty at the grass-roots level. Providing a fish foodball of resources to fund faculty initiatives aimed at a broad university priorities such as undergraduate education or diversity creates market forces that align well with the highly entrepreneurial nature of the faculty culture.

A Shift in Management Culture

Most universities face a great challenge in getting faculty to commit to institutional goals that are not necessarily congruent with their professional and personal goals. Furthermore, perhaps because of the critical and deliberative nature of academic disciplines, universities have a hard time assigning decision-making responsibilities to the most appropriate level of the organization. The academic tradition of extensive consultation, debate, and consensus building before any substantive decision is made or action taken is often incapable of keeping pace with the profound changes swirling about higher education. In the private sector, change is usually measured in months, not years; at the university, change is sometimes even measured in decades. In the university, as the saying goes, change occurs one grave at a time.

Clearly universities need to develop greater capacity to move more rapidly. Yet imposing changes on the university management culture can be a most difficult and dangerous undertaking, particularly for a university president. For example, suppose a university administration becomes convinced that major reorganization of the institution is necessary. How should one go about it? One approach would be a simple top-down edict. For example, some institutions have simply announced a major restructuring, in which the winners and losers are identified up front, and dissent is ignored or repressed. Yet this approach is problematic in the creative anarchy characterizing the contemporary university. It is always difficult for the university leadership to have sufficient understanding of intellectual issues, particularly within the disciplines, to determine the best organization. Furthermore, such top-down reorganization, while perhaps being an efficient way to respond to existing concerns, can result in new empires that will eventually dominate the institution and once again constrain change.

In particular, we needed to challenge a deeply ingrained management culture in higher education in which academic leaders are expected to purchase the cooperation of subordinates by providing them with incentives to carry out decisions. For example, deans expect the provost to offer additional resources in

order to gain their cooperation on various institution-wide efforts. This bribery culture is one of the major factors in driving cost escalation in higher education today. It is also quite incompatible with the trend toward increasing decentralization of resources. As the central administration relinquishes greater control of resource and cost accountability to the units, it will lose the pool of resources that in the past was used to provide incentives to deans, directors, and other leaders to cooperate and support university-wide goals.

Hence, it is logical to expect that both the leadership and management of universities will need increasingly to rely on lines of true authority similar to those found in business or government. That is, presidents, executive officers, and deans will have to become comfortable with issuing clear orders or directives, from time to time, which override the anarchy of disciplinary units. Throughout the organization, subordinates will need to recognize that failure to execute these directives will likely have significant consequences, including possible removal from their positions. Here the intent is not to suggest that universities adopt a top-down corporate model inconsistent with faculty responsibility for academic programs and academic freedom. Collegiality should continue to be valued and honored. However it is clear that the modern university simply must accept a more realistic balance between responsibility and authority.

Transformative Leadership

Leading the transformation of a highly decentralized organization is a quite different task than leading strategic efforts that align with long-accepted goals. Unlike traditional strategic activities, where methodical planning and incremental execution can be effective, transformational leadership must risk driving an organization into a state of instability in order to achieve dramatic change. Timing is everything, and the biggest mistake can be agonizing too long over difficult decisions, since the longer an institution remains in an unstable state, the higher the risks of a catastrophic result. It is important to minimize the duration of such instability, since the longer it lasts, the more likely the system will move off in an unintended direction or sustain permanent damage.

So how does one stimulate and lead the process of transformation in the fragmented university? Sometimes one can stimulate change simply by buying it with additional resources. More frequently transformational change involves first laboriously building a consensus across disparate units necessary for grassroots support. But there were also times when change requires a more Machiavellian approach, using finesse–perhaps even by stealth of night–to disguise as small wins actions that were in reality aimed at blockbuster goals. And there were times when, weary of the endless meetings with group after group to build consensus, including, at times, the institution's governing board, one is tempted instead to take the Nike approach and "just do it," that is, to move ahead with top-down decisions and rapid execution–although in these latter cases, the president usually bears the burden of blame and hence the responsibility for the necessary apologies.

Recognizing that sometimes a bold agenda will pull together a fragmented community to address a common purpose, we turned to a Michigan faculty member, C. K. Prahalad, for his concept of *strategic intent*. (Prahalad and Hamel, 1994). The traditional approach to developing strategies focuses on the fit between existing resources and current opportunities. In contrast a strategic intent is a stretch vision that intentionally creates an extreme misfit between current resources and future objectives that requires institutional transformation to build new capabilities. After considerable discussion across the university at various levels of faculty, students, staff, and our governing board, we finally adopted the strategic intent of *providing the university with the capacity to re-invent itself as an institution more capable of serving a rapidly changing state, nation, and world*. (Duderstadt, 2001). Our earlier strategic efforts had required a careful optimization of the interrelated characteristics of institutional quality, size, and breadth. The strategic intent would require more: tapping the trailblazing spirit of the Michigan saga. It would emphasize risk-taking and innovation. It would demand the bold agenda of re-inventing the university for a new era and a new world.

As the various elements of the transformation agenda came into place, our leadership philosophy also began to shift. We came to the conclusion that in a world of such rapid and profound change, as we faced a future of such

uncertainty, the best way to achieve our strategic intent, to re-invent the university, was to explore possible futures of the university through experimentation and discovery. That is, rather than continue to contemplate possibilities for the future through study and debate, it seemed a more productive course to build several prototypes of future learning institutions as working experiments. In this way the university could actively explore possible paths to the future.

For example, we explored the possible future of becoming a privately supported but publicly committed university by completely restructuring our financing, raising over $1.4 billion in a major campaign, increasing tuition levels, dramatically increasing sponsored research support to #1 in the nation, and increasing our endowment ten-fold. Ironically, the more state support declined as a component of our revenue base (dropping to less than 10% by the late 1990s), the higher our Wall Street credit rating rose, finally achieving the highest AAA rating (the first for a public university).

Through a major strategic effort known as the Michigan Mandate, we altered very significantly the racial diversity of our students and faculty, doubling the population of underrepresented minority students and faculty over a decade, thereby providing a laboratory for exploring the themes of the "diverse university."

We established campuses in Europe, Asia, and Latin America, linking them with robust information technology, to understand better the implications of becoming a world university.

We played leadership roles first in the building and management of the Internet, then assisted in the creation of Internet2, and finally began efforts to develop the cyberinfrastructure necessary for a cyberspace university through efforts such as the Media Union, the Sakai middleware project, and the Google library digitization project to explore the implications of rapidly evolving technology on higher education. (National Academies, 2003, 2005).

Our approach as leaders of the institution was to encourage strongly a "let every flower bloom" philosophy, to respond to faculty and student proposals with "Wow! That sounds great! Let's see if we can work together to make it happen! And don't worry about the risk. If you don't fail from time to time, it is

because you aren't aiming high enough!" We tried to ban the word "NO" from our administrators.

Nevertheless, in all of these experiments and many others, at least we learned something. More specifically, while all of these efforts were driven by the grass-roots interests, abilities, and enthusiasm of faculty and students, they also were aimed at pulling together the university in a common cause. While such an exploratory approach was disconcerting to some and frustrating to others, fortunately there were many on our campus and beyond who viewed this phase as an exciting adventure. And all of these initiatives were important in understanding better the possible futures facing our university. All have had influence on the evolution of our university.

Some Lessons Learned

There are many lessons, both good and bad, to learned from our efforts at Michigan to lead the university toward common goals and a public purpose. Beyond the obvious challenges (build on institutional history; keep your eyes on the goals; be candid, demanding, and evidence-based in your appraisal of progress), there are other important aspects of any successful effort that relate more to the unique nature of academic communities.

First, it is important that since such efforts frequently involve institutional transformation, one should always begin with the basics, by launching a careful reconsideration of the key roles and values that should be protected and preserved during a period of change. After all, the history of the university in America is that of a social institution, created and shaped by public needs, public policy, and public investment. It is the role of the president to stimulate this dialog by raising the most fundamental issues involving institutional values.

Cleary it is essential critical that the senior leadership of the university buy into the effort and fully support it. This includes not only the executive officers and deans, but also key faculty leaders. It is also essential that the governing board of the university be actively involved in the effort.

It is important to provide mechanisms for active debate concerning the objectives and process by the campus community. At Michigan, we launched a

series of presidential commissions on key issues such as the organization of the university, recruiting outstanding faculty and students, and streamlining administrative processes. Each of our schools and colleges was also encouraged to identify key issues of concern and interest. Effective communication throughout the campus community is absolutely critical for the success of the institution-wide efforts. In this regard it important to identify individuals at all levels, and in various units of the university, who will buy into the agenda and become active agents on its behalf. In some cases, these will be the institution's most influential faculty and staff. In others, it will be a group of junior faculty or perhaps key administrators.

To be sure, significant resources are required to fuel such efforts process, probably at the level of 5 percent to 10 percent of the academic budget. During a period of limited new funding, it takes considerable creativity (and courage) to generate these resources. As we noted earlier, since the only sources of funding at the levels required for such major initiatives are tuition, private support, and auxiliary activity revenues, reallocation becomes an important component of any strategies.

Large decentralized organizations such as universities will resist change. They will try to wear leaders down, or wait them out. Here one should heed the warning from Machiavelli: "There is no more delicate matter to take in hand, nor more dangerous to conduct, nor more doubtful of success, than to step up as a leader in the introduction of change. For he who innovates will have for his enemies all those who are well off under the existing order of things, and only lukewarm support in those who might be better off under the new." The resistance can be intense, and the political backlash threatening.

Yet it is also clear that the task of leading the fragmented university toward institutional objectives cannot be delegated. Rather, the university president must play a critical role both as a leader and as an educator in such efforts to unify the campus community.

A Final Admonition

The decentralized structure of the university as a complex adaptive system has evolved over the centuries to solve extremely complex problems. Ironically fragmentation sometimes serves a useful purpose, since within the confines of the institution it allows people to apply themselves to solve problems that are impossibly difficult for individuals or groups working in an institution-free environment. Again quoting Lohmann, "In its ideal form, the university will remain precariously poised between powerful academic, bureaucratic, political, and market forces, servant to none. On the one hand, the university must preserve a free space in which specialized and creative inquiry can flourish. On the other hand, it must be responsive to social and technological change." (Lohmann, 2005).

What may appear to critics–particularly those from outside academe–as a badly flawed institutional structure is, in reality, one of the most valuable characteristics of the contemporary university. Comprehending the complex workings of this knowledge ecology is difficult for outsiders (and even those within academe). Over the century powerful walls have sprung up (e.g., university autonomy, academic freedom, tenure) to prevent outsiders from tampering with the university's affairs.

While university leaders should seek to pull together the fragmented academic communities to address many of the public purposes of higher education, they should also bear in mind an important caveat: It could well be that the contemporary university is so resistant to efforts to fix its fragmentation not because remedies are insufficiently strategic and robust or leadership is inadequate, but rather because the contemporary university, evolving as it has over many centuries, has acquired the optimal configuration of a complex adaptive system as the natural and logical organization of a knowledge institution.

Hence, in seeking remedies for the fragmented university, it is important that university presidents always bear in mind the physician's warning to "First, do no harm!"

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