Report by the eC2 Subcommission on e-Outreach

Subcommission Members

Norman Alessi, Professor of Psychiatry; *Chair*
Jonathan Alger, Senior Attorney, Office of the General Counsel
Terry Elkes, LLB '58, Managing Director and Co-owner, Apollo Partners LLC
James Hilton, Associate Provost for Information Technology and Academic Affairs and Thurnau Professor of Psychology
Pramod Khargonekar, Professor and Chair of Electrical Engineering and Computer Science
Jonathan Levine, Associate Professor of Urban Planning
Wendy Lougee, Associate Director for Digital Library Initiatives
Donovan Reynolds, Director of Broadcasting, WUOM/Michigan Radio
James Steward, Director, Museum of Art, and Assistant Professor of Art History and of Art and Design

Table of Contents

Executive Summary **5-4**
THE ECOLOGY OF E-OUTREACH 5-4
RECOMMENDATIONS 5-6

Subcommission Overview **5-9**

An e-Outreach Agenda **5-10**

Existing Initiatives **5-11**

Institutional Program Development **5-13**
POLICY CLARIFICATION 5-13
INSTITUTIONAL STRUCTURES IN SUPPORT OF E-OUTREACH 5-15
TECHNOLOGY INFRASTRUCTURE 5-15
CENTRAL/DISTRIBUTED COORDINATING MECHANISMS 5-17
CRITICAL COMMUNITIES 5-18
INVESTMENT AND EXPERIMENTATION 5-19

Concluding Remarks **5-19**

Executive Summary

Universities must respond to a myriad of forces at play within their campuses, in higher education, and in the broader world. The late 1990s have brought us face-to-face with phenomena of globalization, virtualization, and commercialization, fueled by technology and marked by an unprecedented pace of change. The ecology of higher education is changing: competition for traditional and new kinds of students is heating up, new opportunities to expand the reach of education are developing, new possibilities for expressing the traditional strengths of universities on a larger and more global scale are burgeoning, and new responsibilities for universities are being generated by a world that is increasingly dependent on gathering information and knowing what to do with it, a world that is smaller and more interrelated than ever before, and a world that is, also, subject to new divisions along lines of digital access. In this new environment, we are witnessing the emergence of new for-profit ventures geared toward the dissemination of knowledge products (e.g., Fathom.com, UNext), new types of universities (e.g., University of Phoenix, Cardean), and new institutional forms and channels of dissemination through new media (e.g., MIT World). These developments are spurred by a growing appetite from the international and domestic corporate sectors for partnerships to address the burgeoning educational needs of the workforce, and from societies to meet the needs for citizens to engage in ongoing learning in a rapidly changing world.

This new world requires a new level of dialogue and action from all sectors of academe. The eC2, or e-Outreach Subcommission[1], of the President's Information Revolution Commission believes that the great public research university is uniquely positioned to balance its values and responsibilities with the strategic choices posed by emerging opportunities in this new environment. The question is not whether to employ new information and communication technologies to reach out, but rather how best to organize the institution to take advantage of these opportunities and, as one subcommission member described it, "where to set the volume" on the extent and nature of our electronic outreach initiatives.

The report that follows details the nature of existing e-outreach activities, critical policy areas where action is warranted to accommodate e-outreach activities, and institutional concerns related to infrastructure, coordination and recognition of new work, and the need for leadership, stewardship, and investment by the University community. We note that, while it is not the purview of this subcommission, the opportunities of the information revolution should not lead the University to overlook other forms of outreach that are more effectively offered to those on the other side of the digital divide.

The Ecology of e-Outreach

The e-Outreach Subcommission addressed the opportunities, risks, and challenges that face the University of Michigan in an environment wherein the boundaries of the University — physical, economic, and intellectual — are potentially stretched to new venues, new audiences, new collaborations, and new modes of activity through the enabling capabilities of technology. Clearly, the forces at play are multiple and might be best explored as an ecological construct — i.e., an environment in which an array of factors are interrelated, dynamic, and evolving in both harmonious and discordant ways.

The subcommission focused on those activities of the institution that seek to share or disseminate its knowledge assets more broadly through curricular, research, and service initiatives. This expanded dissemination can take various forms: it might be commercial or pro bono service; it might be sponsored research or delivery on contract or publication of scholarly work; it might be organized by individual faculty, by departments, by schools and colleges, or by the central administration; it might involve external partners or be wholly contained within the University; it might involve Internet delivery or call upon the University's broadcast capabilities. While we did not address specific types of programs per se, we sought to arrive at a sense of the institutional issues vis-à-vis outreach in a digital era.

A dominant theme of the contemporary world is reflected in the emergence of the "knowledge economy," with new players, unpredictable dynamics, new "haves" and "have-nots," and unprecedented global scope. The heightened interest in knowledge assets within the public and private sectors is fueled not only by technology and e-commerce capabilities that make these assets potentially more accessible and marketable, but also by shifting values that underlie interests in lifelong learning, global education, and the leveraging of intellectual capital. Within this emergent environment, institutions of higher education may well be judged on their ability to gain attention and deliver content in response to social needs, since this new economy provides an opportunity to project all of those things that distinguish universities into the broader world. Indeed, in this new economy the University of Michigan, as a public, and increasingly global, institution dedicated to knowledge dissemination, has a responsibility to project its assets outward—otherwise we risk abdicating the economy of knowledge to the dot-coms. At the same time, we have a responsibility to approach the information revolution and the emerging knowledge economy in the context of their broad impact on the world, considering both those who are benefiting by them and for those who are left behind.

Why should the University of Michigan engage the new knowledge economy?
While for some units the answer is tied to competitive advantage, for others the imperative is far less obvious. During the subcommission's explorations, it became clear that these environmental forces affect different parts of the institution in different ways and at different rates. UM-Flint, UM-Dearborn, the Business School, and the Medical School, for instance, are actively pursuing—and feel that they must pursue—engagement. Other areas of the University face less pressure. We believe, however, that even those parts of the University that are currently agnostic about e-outreach must have the policy structures and infrastructure available to play in, benefit from, and help shape this economy, should they so choose.

Notably, the necessary institutional support for e-outreach is not altogether distinct from on-campus programs. The same infrastructure and services that support new modes of instruction, new interdisciplinary research interests, and internal collaborations can also enable externally directed programs and partnerships. Conversely, the tools and methods necessary to support e-outreach activities can support and enhance campus-based efforts—for example, the University's membership in Fathom.com may bring the benefit of media production support for on-campus programs and interests. Consequently, even units with no interest in e-outreach may benefit from the enabling infrastructure that will be required.

The differential effects of external forces on University units are not surprising. A number of units have successfully launched technology-based outreach initiatives, as described in the "existing initiatives" section below. Yet, based on our investigations, it appears even those schools already successfully engaged in e-outreach sometimes face obstacles of unclear policy, inadequate support, immature infrastructure, and lack of institutional mechanisms to deal with the challenges. Other units not already immersed in e-outreach express concerns with a lack of clarity in institutional direction or sanctions for externally directed activity. The University lacks an articulated institutional philosophy for guiding and developing our engagement in the knowledge economy. The results are: 1) hesitancy among some members of the University community to act, 2) lack of coordination among units that are acting or that seek to act, and 3) the establishment of de facto policies based on the precedents of individual cases, without sufficient attention to the implications for other parts of the University community.

At the present time, this new economy is in flux, and institutions such as U-M have a window of opportunity—a window that some think could close quickly. Based on the subcommission's review, it is our sense that it is in the best interest of the University to develop more robust and agile policy and support mechanisms for e-outreach and, in addition, to explore central initiatives. Central initiatives are important to leverage the assets of the institution, to open new opportunities for individual units and faculty members, and to maintain a university presence in this new environment—without unduly constraining individual units and faculty from pursuing their own initiatives. However, given the wide-open nature of the new economy, with its potential to generate internal competition in the University, finding and sustaining a balance between faculty and unit interests and central programs will be essential.

Recommendations

The subcommission's recommendations fall into critical areas of leadership, incentives, policy, and infrastructure. Given the broad and encompassing definition of e-outreach, these recommendations are equally broad; nonetheless they address areas where institutional clarity and increased investment is required.

1) The University must engage in the knowledge economy with collective vision and foresight. The leadership of the University of Michigan, both central and school/college administrations, needs to provide a vision for our engagement in the knowledge economy. This vision must link engagement to institutional mission; it must address the balance of unit interests and resources; and it must set forth the appropriate role of the central administration as facilitator, leverager, and occasional initiator of outreach activity. The following recommendations should be, we believe, elements of this vision.

2) In this vision, the role of the central administration must be clearly established. We believe that this role has several components: 1) the central administration should help coordinate activities among the various units, to ensure that all unit interests—and the interests of the University as a whole—are accounted for; 2) the central administration should facilitate the e-outreach activities of individual

units by fulfilling the recommendations made below concerning infrastructure, incentives, and policy clarification; 3) the central administration should seek to leverage opportunities for the University and its units, particularly where individual units lack sufficient leverage; this recommendation extends to engagement in University-wide partnerships and agreements where such agreements can advance the mission of the University and individual units; 4) the central administration should seek to leverage the activities of individual units, where doing so will help advance the University mission as a whole; 5) the central administration should foster an environment of experimentation and innovation for e-outreach.

3) The University should pursue multiple modes of outreach—e.g., commercial, sponsored, and service—determining which modes will best advance the mission and express the values of the University in a given situation. In helping to shape the knowledge economy, the University must strike a balance between commercialization opportunities and service and scholarship needs and values—indeed, this balance is one of the things that the University can bring to bear on the new economy as it projects its assets. We must reassert the University's core missions and "business" in the light of dramatically new modes for the generation, preservation, and dissemination of knowledge. The very first question the University ought to ask when presented with any commercial opportunity is, "How does this fit with the mission of the University?" In the context of a popular culture that resembles the gold rush—where the "gold" is ideas—how do we preserve the academic tradition of the free interchange of ideas and sustain our own tradition of commitment to diversity and access?

4) The central administration and the schools and colleges must establish incentives and support for those individuals and units who want to participate in this new economy. Just as we now recognize individuals and units who excel in research, teaching, and service, we must also recognize those who excel in the new forms of research, teaching, and service that the knowledge economy will provide. Refinement of the institution's policies related to intellectual property and faculty conflict of commitment will be fundamental to this incentive structure.

5) The University must develop, coordinate, and maintain high-end production capabilities and a robust structure of "distribution channels," building upon the substantial assets it already holds. Operating in the knowledge economy requires new forms of production. Some of that production will likely migrate to the desktops of individual faculty in the same way that e-mail and word processing are now part of faculty skills. Presentation graphics and low-end video will be standard faculty and student tools in the not-too-distant future. However, simulations, full-blown distance-education courses, and digital dissemination that is designed to compete for the attention of the public (which includes our future students) require high-end production. In addition, existing capabilities for distribution of real-time media will require significant enhancements to compete effectively and deliver quality content. The need for these capabilities should dovetail with emerging public relations interests of the institution as well. We make special note here of the need for the University to assess its distributed broadcast capabilities—its television, radio, and Internet broadcast capabilities—in light of impending digitization, and to develop means for more effective and coordinated use as a major and irreplaceable e-outreach asset.

6) The central administration must quickly resolve key policy issues that bear upon digital production and dissemination of information and knowledge. For the University to participate in the new economy in a coordinated way, we need to look at several critical policy areas:

- intellectual property policies (ownership).
- conflict of interest/commitment policies.
- advertising/endorsement policies.
- use of the university name/marks.
- terms of agreement and legal resources (e.g., releases) and awareness of the legal restrictions that apply to digital material and broadcasts.
- policies and models for external partnerships and agreements.

7) The central administration and the schools and colleges must develop effective mechanisms for evaluating all outreach initiatives in terms of finances, legal constraints, academic mission, contribution to on-campus educational and research capabilities, and impact on other units and on the University as a whole.

8) The University should reexamine its relationship to critical learning communities. The question in particular is: what is the University's relationship to its alumni and to its prospective students (and prospective college students in general), and how are these relationships altered by the digital communications revolution? Should the University adopt the position that students are "lifelong learners," maintaining a lifelong relationship to the institution? What are the implications for our way of doing business should we pursue such a model? And what of communities around the globe, now more accessible by virtue of information technology? Are these communities potential markets only—or does our emerging globalization as an institution require that we also consider them in other aspects? What responsibilities do we bear, as a public institution, to communities, domestic or international, on the other side of the digital divide? To what extent should we engage in activities to lessen that divide? Finally, how do we approach the very question of community in these endeavors, understanding that new community-building may require us to modify our own ways of thinking and doing things. These are very large topics that we felt were beyond the scope of the subcommission; nonetheless, we believe that, both at the college level and at the level of the University as a whole, effective processes for examining our relationship to these critical communities must be established if e-outreach (and outreach more generally) is to be conducted in the full and proper context.

9) The University should collectively engage in an aggressive program of experimentation in the area of location-independent instruction or distance learning, and should develop mechanisms for institution-wide sharing of experiences gained from ongoing experiments and mechanisms. The ability to function well in the new knowledge economy will be acquired by learning through doing. At the same time, we must note that this new economy is rapidly evolving. We must be prepared to make mistakes; equally important, we must share our experiences across the institution, so that new initiatives can build upon those that have gone before. Although, as we have noted, much of what

guides e-outreach will be specific to individual colleges and areas of study, we must strive to identify those overarching themes and realizations that can benefit units working in other areas.

10) The University should take advantage of the collaboration support potential of the new technology to reach out to previously underserved communities, both to extend the University's benefits and to increase the valuable diversity of views within the University itself. As we engage with this diversity of views, we should also explore how this communication medium might reproduce problematic cross-cultural relationships, and how it might also improve them.

11) The University should accelerate its development of information technology for the conduct of routine business transactions, for providing information to the public, and for extending the social networks of its faculty, staff, students, and alumni.

Subcommission Overview

In launching the Presidential Commission on the Information Revolution, President Lee Bollinger raised three key questions to frame the effort. These questions dealt with the intellectual issues of the information revolution, the use of technology in support of the academic mission, and the institution's position related to distance learning. Rather than focus only on the last issue, the Outreach subgroup of the commission sought to address the broad and interrelated issues associated with expanding the boundaries of the institution. This larger agenda better captures the dimensions of change within the academy and society that prompt a more explicit external agenda for institutions such as Michigan.

Provost Nancy Cantor's 1998 address to the faculty offered a similar perspective on the breadth of issues affecting the professoriate and the institution. Her comments relate to an historical imperative for the University of Michigan that might not be experienced by other universities. This imperative is to be inclusive and wide-ranging in what we do.

> Michigan's special burden, or special passion if you want to be positive about it, [is] to do everything reasonably well. This is clearly in some major sense tied to our publicness, to our sense of a public mandate to support the state and to provide nationally a sense of give back.
>
> . . . The other thread that our historical imperative weaves into our publicness is a sense of permeability between the boundaries of the community we create and the community we are intimately hooked into, both in the state and more broadly. We have a constant national intent and an extensive definition of who we are that goes beyond our immediate boundaries. . . . You surely see this effort in the breaking-down of boundaries with respect to the non-traditional classroom. What indeed is a classroom? How and in what ways does

> community service learning, for example, become a piece of our traditional curriculum? So, when we talk today about the changing nature of the professoriate, we need to do this within the context of our historical imperative to be inclusive and wide-ranging and to create permeable boundaries with the communities outside our walls so we can be responsive to changing public values and needs. *University Record, November 9, 1998*

These statements capture the complexity of change that both defined and challenged the discussions of the subcommission. One cannot talk simply about distance learning without understanding how methods of teaching and learning are changing. The nature of emerging external relationships encompasses new models that cut across traditional lines of academic activity. And the changes in public values and needs are prompting demand for new models of carrying out the institution's mission. While the subgroup has dealt with the permeability of institutional boundaries as it relates to teaching and learning, it has also grappled with a far broader set of issues that reflect the sharing of institutional assets—be they physical or intellectual—in the knowledge economy.

An e-Outreach Agenda

The e-Outreach Subcommission identified several key themes and principles that will shape and determine the extent and nature of Michigan's e-outreach agenda.
Central to the work of the subcommission was the theme of sustaining the institutional mission in the context of these new knowledge-economy opportunities, recognizing that the factors noted above affect the mission and core activities of the University in fundamental ways. As an institution dedicated to creating, communicating, preserving, and applying knowledge, the intellectual assets at stake here are significant, and the University's stewardship responsibilities are large. These responsibilities must include responsiveness to the changing economy, media, and channels of communication as well as developing an environment that supports and encourages faculty and units to disseminate knowledge in new contexts.

As a university committed comprehensively to the trinity of research, teaching, and service, Michigan must also strive to articulate its position on outreach in the context of all these sectors of activity as well as the balances that must be sustained. Particularly as an institution dedicated to public service, Michigan has a responsibility to help shape the economy, media, and channels of communication of knowledge, to encourage democratization and to balance commercialization—in other words, "to set the volume" appropriately. In addition, the University's status as a state-supported institution and its responsibilities to the State of Michigan must be considered and perhaps clarified in an era in which technology largely erodes state and even national boundaries. These responsibilities might mean attention to new audiences, to traditional audiences in new settings. They might mean blurring the distinctions between audiences, or exploring a far broader community of interest for knowledge dissemination. The preservation of knowledge might well require that we take active measures to oppose the realization of a kind of Gresham's Law in the economy of knowledge.

Equally important, we must recognize that the information revolution is creating new divides as well as new unities. It looks much different from the perspective of one without access to technology, or from the perspective of a society for whom "globalization" looks largely like "Americanization." Consonant with the historical imperative articulated by Provost Cantor in the passage quoted above, we must ensure that as we "reach out," we are not simply extending our walls but also making genuine contact with those on the outside.

First and foremost, *a strategic framework or vision* for e-outreach activity is essential. This vision may be best characterized by an institutional demonstration of commitment to removing barriers, developing infrastructure, shaping relevant policy, and a stated direction with respect to central initiatives. Given the dynamic nature of the new knowledge economy, the degree of uncertainty about future directions it might take, and the differentiation of this economy into fairly discipline-specific areas, a detailed, centrally directed "plan" for engaging the knowledge economy would be folly, and unfeasible. However, an expression of institutional will to engage this economy, in the name of our traditional missions, and the commitment by the central administration to coordinate, encourage, foster and develop initiatives and opportunities would go far. Many individuals and units are poised to move aggressively to seize the emerging opportunities. Without a sense of institutional direction, there is a hesitancy and ambiguity in how to accomplish these unit and individual objectives while remaining consistent with University missions and policies.

The necessary vision has to come from the leadership of the University, both central and at the school/college level. It must be agreed upon and must be developed in the near future so the University can proceed in a strategic manner to capitalize on its assets and compete effectively in the changing academic arena.

Existing Initiatives

Our investigation included discussions with representatives from an array of programs on campus, revealing the diversity of interests, perceived obstacles, and the obvious differences in the rate of pursuing e-outreach opportunities. Not surprisingly, the professional schools are moving with a greater sense of competitive urgency and more comprehensive approaches, while others may have more singular programmatic interests at stake. Our strategic framework must balance these distinct needs as well as set a course for the institution. The potential tensions between central-based, unit-based, and individually based entrepreneurial activity is high. The University, individual colleges, and individual faculty and staff are being approached with opportunities, some of which may create internal competition or conflict downstream. We believe there is an important balance to be struck in ensuring that institutional values prevail, while enabling unit and individual activity. Policy and structural mechanisms must be developed to ensure this institutional perspective and community balance.

Some illustrative examples of units in which these pressures are already evident include:

UM-Dearborn and UM-Flint. As commuter institutions, UM–Flint and UM–Dearborn face significant competition from new e-learning providers that offer non-residential students new learning opportunities. These campuses are actively responding to these developments—UM–Flint, for instance, went from 0 online courses to 12 in a six-month period, with plans of doubling online course offerings each semester.

Business School. Within the corporate world there are enormous competitive pressures, not only for the U-M Business School with other business schools, but increasingly with corporations to whom the University may have distributed information in the past such as Price Waterhouse, etc. The Business School's programs have reached a level of development where partnerships may be less attractive and control of its own destiny more important.

Medical School. The Medical School produces knowledge, but also produces service as a product. The product in this case is the delivery of healthcare, which exists within a very competitive market. What were once more local or regional markets have become more global. There are now a number of organizations and corporations—such as WebMD, MedScape, and the Mayo Clinic—that distribute information to patients online. Consequently, the University of Michigan Medical School as part of the University of Michigan Health System is feeling a sense of urgency with respect to these types of cutting-edge healthcare information delivery systems that are capable of influencing patient care and patient choice of providers.

College of Engineering. There are a number of schools of engineering that are now offering courses online, including leading institutions such as Stanford University. Online degrees from respected universities are becoming increasingly popular because of the credibility that they grant. The College of Engineering is feeling a sense of pressure and competition, both to attract students and potentially contracts with corporations that might purchase education online.

Reflected in the above examples are the established trends in the professional school community toward distance learning, but we also found evidence of more complex external programs that reflect the interplay of resources, organizational agility, consumer/public interest, etc. For example, a partnership between UAW/Ford and U-M brings together significant resources to provide distance-learning opportunities to employees at Ford plants around the world. In addition to grant funding, student tuition is paid as a union benefit. The courses are developed and taught by UM–Dearborn faculty. Technology development is based at UM–Ann Arbor and builds on CourseTools. Such a project challenges an array of institutional structures, from questions of credentialing to technology support to inter-organizational relationships and agreements.

A very different example can be found in the arts and humanities. Some would argue that U-M is poised to be *the* national leader in the area of cultural engagement—pioneering, documenting, critiquing, and promoting campus-community partnerships in the arts, humanities, and design. Programs include Imagining America and the Arts of Citizenship program, plus the Community Information Corps, Arts at Michigan, the Museum of Art, University Musical Society, Internet II arts, the Interna-

tional Institute, the Library's Humanities Text Initiative, and countless other humanities programs. Critical to these programs are very basic support issues and the importance of communication technologies to sustain relationships.

The School of Information has launched the Community Information Corps to help students deal with the complex issues of community-building in the emerging new economy. The program director notes "globalization, digital information, and evolving definitions of community are changing the ways in which service-minded individuals engage in work and social transformation." This program includes practical projects as well as seminars that introduce concepts from social and political theory to frame the notion of public interest. An externally funded fellows program is offered for students who intend to work in public interest careers.

We share a final example that reflects a very different type of outreach and dissemination. Two faculty in Philosophy have launched a new, peer-reviewed journal, Philosophers' Imprint, with a goal of offering a no-subscription, "volume-less" model (i.e., articles will be issued as they are ready) in which authors will retain copyright of their work. The effort is a partnership with the University Library's recently established Scholarly Publishing Office and offers the potential of challenging established conventions of pricing and distributing knowledge resources.

Institutional Program Development

A critical aspect of demonstrating institutional commitment in the area of e-outreach is attention to the areas where structural or policy improvement is necessary. The array and complexity of these issues also suggests that coordination of the program development process itself will be important. We must balance our administrative decentralization—which carries many huge benefits for the institution—with an increased need for central coordination in this new economy, in order to achieve economies of scale, mediate and alleviate potential competition between units, and leverage assets for the good of the units as well as the University as a whole. We need to be thoughtful and deliberate about what functions should be coordinated and what should be left to the initiative and discretion of the individual units.

Policy Clarification

Many of the faculty and staff with whom the subcommission spoke cited policy areas that need further definition or revision in order to create an effective and enabling environment for e-outreach. These include:

Media Rights/Intellectual Property: Outreach programs are inherently about the distribution of intellectual assets. Consequently, the issues raised recently by the Media Rights Task Force[2] (and now included in the charge of the Intellectual Property Policies Committee) need discussion and resolution. These issues include not only the questions of ownership, but also institutional policy about use of

copyrighted material. In addition, the increasingly collaborative work with students will require greater specificity about roles and intent, with up front documentation of ownership and use issues.

Faculty Roles/Appointments: The issues associated with intellectual property ownership and control are very closely coupled with policies related to conflict of commitment and interest. Visitors with the subcommission, and our investigations of noted problem cases in the news, suggest that fundamental questions about ownership and control of course materials in particular needs resolution, with greater clarity required concerning what constitutes a commissioned work, how these resources might be used or reused within the institution, and norms for designating levels of institutional investment. Specific attention is needed concerning the rights and responsibilities of individual faculty and their ability to engage in commercial activity, independent of the institution, with respect to course-related material. Guidelines need to be developed for faculty job descriptions, expectations, support, and recognition structure that reflect the changes that will occur due to the new media.

Recognition for Faculty Contributions: New media challenge the traditional forms of research activity, dissemination, and publication. Questions need to be addressed within the community relative to academic credit for these types of products of research. How will faculty investment of time and energy be recognized? While some learning technology applications are becoming easily accessible, others may require significant investments and incentive structures to encourage faculty participation.

A related issue lies in the desirability of fostering greater sharing of intellectual assets within the University. Particularly given interdisciplinary trends, there is greater likelihood that tools, content, and other resources developed in one area may be of benefit to others. Although obviously related to issues of control over the use of intellectual property, there is a sense that enabling structures to share these assets (for those who choose to do so) would provide a community benefit. Given the increasingly transitory nature of some intellectual assets, more formal structures for sharing or archiving resources may also have an additional benefit of potentially ensuring the longevity of these assets.

Institutional Name/Marks: There is a constellation of policy issues related to the appropriate use of the institutional name and associated marks/symbols. Several years ago a presidential committee was appointed to look at these questions and drafted a statement related to use of the name, as well as related issues associated with advertising and endorsements. These issues include policy, technology, and legal aspects—e.g., under what circumstances should the University lend its name to a program? What liability and risk factors are assumed with institutional endorsement and support? What rights do individual faculty have to use the institutional name, and what position does the institution have vis-à-vis faculty endorsements (implied or absolute)? The development and support of complex web environments, along with new forms of corporate relationships, have raised issues associated with commercial advertising and services within the University's non-profit online environment. The subcommission notes the imperative of reviewing the existing draft and refining an institutional policy about these critical issues.

Institutional Structures in Support of E-Outreach

The subcommission reviewed a variety of projects, reflecting a range of configurations (legal, financial) for external relationships with a variety of other entities (e.g., consortia, other universities, libraries, museums, corporations, for-profit education enterprises). Notably, e-outreach projects can emerge from different sources and take different forms—e.g., that of a sponsored project, a business contract, a license agreement, and a non-profit collaboration. It appears the current taxonomy for such projects may hinder the evolution of new models. Indeed, from conception to implementation, a single project can look as if it falls into one or more types of activity. Consequently, institutional models for talking about and managing these new forms of outreach relationships may be an important step in building community understanding as well as the necessary policy and service infrastructure to support these new models.

In addition to attention to the models for structuring relationships, further elaboration and analysis may be needed to appropriately structure the supporting administrative and service agencies within the University. Given the greater complexity of relationship models, faculty and units often do not currently know which offices in the University should provide assistance or how to bring together all relevant perspectives and services in support of a complex project. In addition, evidence from existing projects suggests that structures and policies that can improve organizational agility and responsiveness may be critical in an environment where timing and more aggressive action may be required.

As models for formalizing relationships with external partners are established, business/economic models will need to be reviewed and refined. This relates to ownership and potential distribution of revenue, but also the funding models for infrastructure and related production services. To the extent that there are elements of both recharge systems as well as public goods involved, analysis of the appropriate funding models will be critical and may impact policies associated with intellectual property as well (e.g., to the extent they are associated with increased institutional investment).

Technology Infrastructure

A separate subcommission has dealt with the issues of technology infrastructure. While this report will not review these larger issues, we offer comment on the nature of infrastructure for e-outreach. Quite obviously, issues of connectivity and appropriate network and distribution channels are a fundamental concern. Our deliberations also addressed issues associated with a "digital divide" at the University; professional schools are more likely to be among the "haves" than the non-professional schools, if for no other reason than they need the technologies for product development and distribution. Nevertheless, this disparity broadly affects the kind of work that can be supported in the non-professional schools, whether for internal or external audiences.

A further infrastructure concern relates to the importance of both technology and content expertise if the ultimate goal is knowledge-production support. Currently, there is a tenuous relationship, at best, between the organizations that have technology resources (such as ITD or MCIT in Medicine) and the content/information/knowledge producers, such as scholars, content managers. In order to leverage

these resources, there typically has to be a familiarity with technology, the type of technology and the type of work that can be accomplished with the technology. The challenge will lie in building the necessary support structures and services that combine knowledge of technology, content, and context.

A key element of the infrastructure is support provided directly to faculty, staff, and students. Much of the innovation in use of information technology for outreach may stem directly from individual units and faculty members, rather than from explicit technological development that the University as a whole might undertake. However, the University as a whole has a critical role in providing the technical resources that enable individual faculty and units to take on projects in digital outreach on their own. We suggest that the term "technical enabler"—as opposed to "technical support"—captures the sense of the kind of support that is needed.

A model of technical enablers and an enabling infrastructure suggests a change in perspective wherein the primary control over development rests with the creators of intellectual activity. The subcommission found examples where existing technology support structures created barriers for that control or in other ways diminished the direct involvement of the faculty creator in the creative process.

Several specific areas of infrastructure were highlighted in our discussions. These include:

Media production capability: the effort and cost of high-quality production for new media efforts are significant barriers to adoption. This may be an area where central services could be important—and indeed, the University has significant assets that, if better coordinated, could better serve the University community. Further, attention to the benefits of coordinated programming activity (relative to "official" channels of distribution) may be a new function to pursue (e.g., TV, broadband, webcast, etc.). MIT's recent announcement about MIT World suggests an interesting utilization of "broadcast" mechanisms—i.e., distribution of campus lectures/events to a targeted corporate audience.

Publication capability: Methods and mechanisms for formal electronic publication may be of broad individual/unit interest. Relative to the preservation of knowledge, there is also an institutional interest in creating enduring products of scholarship that will be available in the future. Cost-effective services and support for these activities should be encouraged.

Communications: The communication functions of the institution are undergoing a transformation not dissimilar to the educational functions. Methods and modes of communication are in transition and there is growing interest in more structured and supported channels of distribution that could be leveraged for the benefit of individual and unit activity as well.

Central/Distributed Coordinating Mechanisms

Michigan has a history of significant strength in its decentralized authority. It is within this context that significant effort to pursue e-outreach has already developed. Yet the subcommission noted several questions that are, at heart, about the issues of coordination and centralized authority and action.

Coordination is necessary at multiple levels within the University in order to facilitate the maximum distribution and outflow of information. Certainly, there are units within the University that have been successful, such as programs in the Business School, Engineering, etc. These are often described as succeeding despite the obstacles within the University and due to external funding sources. One could imagine a scenario, however, in which contractual relationships established at the school/college level might constrain the future activity of other units or of individual faculty. Similarly, institutional initiatives may limit or shape what is possible at the unit level. How are individual, unit, and institutional interests balanced? How can and should the institution internally market its activities to enable participation?

Policy and operational structures need to be clarified so that there can be a shared sense of how we can proceed aggressively as an institution. We can certainly continue to operate as independent units within the University, letting a thousand flowers bloom. However, we anticipate situations where individual or unit activity may well work against the interests of other units or the institution and the review mechanisms must be in place at the unit and university levels to evaluate the risks/benefits of new ventures.

A number of institutions have instituted central administrative units or coordinating entities to handle external relations and outreach. While we do not believe this is a prerequisite for success (and may, in fact, be inappropriate in Michigan's decentralized environment), there may well be the need for focused administrative attention to the panoply of policy and infrastructure issues that will arise in formalizing the institution's support for e-outreach, particularly in this crucial developmental phase. While we have not recommended a specific administrative structure, we can articulate the outcomes that are needed. Policies need to be reviewed and revised in the context of outreach activities (some of this is already underway). Infrastructure development needs to be informed by the types of outreach activity that is likely to occur and the likely specific challenges related to externally based work (e.g., security and authentication/authorization mechanisms, collaboration technologies, bandwidth, durable systems, etc.). In short, it will be critical to have the outreach perspective infused into other program development activities either through focused representation of these interests or a process to specify needs at a sufficient level of granularity.

Finally, there needs to be some sort of coordination and central clearinghouse for e-outreach relationships, programs, and contracts that are being developed by units and by the University. The subcommission did not reach a recommendation on whether or not this should be done through the current existing organizational structures or whether or not there is need for a new position or unit with responsibility for addressing and facilitating resolution to problems noted.

Critical Communities

When John Seely Brown met with the commission he described a culture that is increasingly motivated to learn in new and enduring ways. He proposed two constructs for the University—one in which the institution views the credentialed learning experience as separate from the post-credentialed life experiences (students vs. alumni). A second perspective embraces a life-long relationship with the University of Michigan community wherein the student and alumni distinction is blurred.

Alumni represent a critical relationship that needs additional attention. Here, too, the questions of central or distributed relationship-management obtain. Does the institution want to nurture a lifelong relationship with graduates, and who holds responsibility for that activity? Given potential alumni interests in programs and resources outside of their degree-granting unit, an institutional perspective may be in order. How do we define this relationship and what assets of the institution should be available to this group? There are legal, contractual, financial, and market issues to be considered.

The subcommission did not have time to address these issues in the detail warranted, but does acknowledge it is an area of some urgency as almost all units have sought to extend relationships to their alumni and the Alumni Association is also trying to build structures for ongoing communication. In the digital environment, it is hard to bound these relationships in a way that was possible in the physical world (e.g., by limiting access to alumni names). To the extent to which this unfettered pursuit of alumni might create competition for alumni attention, there may be benefits in addressing services directly marketed to alumni in a more holistic fashion (e.g., institutional portals, coordination of activity, etc.).

On the other end of the "lifelong learning" continuum is K–12 education. The University, through the School of Education and other units, already engages in extensive outreach in the K-12 arena. Some of this outreach is digital in form, or is facilitated by digital components (e.g., the Museum of Art, the Exhibit Museum of Natural History, the International Institute, the Space Physics "Windows on the Universe" project). In this report, we want to stress that there may be a special reason attaching to K–12 outreach for the central administration to resolve policy concerns and develop infrastructure supportive of digital production. The following scenario has occurred more than once in recent institutional history: a website or online project with a significant K–12 outreach component is developed by University faculty and students, with support provided by an external agency. The agency support is limited, as most such grants are, to development; ongoing production is not funded. And yet, ongoing production costs for successful sites can be fairly large. At the point where external funding subsides, the developers of such sites face a decision concerning how to maintain funding. If institutional funding is not available, and clarity is lacking in key areas of policy—such as internet advertising—we risk forcing the demise of such sites, forcing the adoption of less desirable and feasible methods of funding (such as charging subscriptions to financially strapped school districts), or forcing the developers to take the sites outside of the University for commercial development.

Moving out from the traditional university student not temporally but spatially, we might point specifically to phenomena of globalization, which are so tightly entwined with the new knowledge economy. The University is increasingly a global institution. Access to previously untapped markets, in developing countries for example, is a driving force in much commercial distance learning enterprises. What is our stance toward the various communities that such markets might represent? What sorts of global partnerships should we be exploring? How can we use information technology not just for exporting education, but also for importing knowledge and wisdom from other cultures and societies? What roles should we play, as a public-spirited institution, in helping to shape, and not just respond to, globalization? As we consider distance learning and outreach opportunities on a global scale, we must do so within the perspective of our evolving international mission and our commitments to diversity that can be compromised by—or transformed by—how the digital age and the digital divide are embedded in our University's philosophy and practice.

Investment and Experimentation

Innovation is often the result of experimentation and collaborations that draw multiple forms of expertise to the table. In addition to the more formal development of policy, infrastructure, and services, mechanisms to encourage and enable experimentation will be equally important. We cannot be afraid to experiment and fail—we know some efforts may pay off, while others may not. But this experimentation is itself part of the educational enterprise. In a like vein, we should encourage sharing of information and experiences among our units, as they launch their own efforts in this new economy of knowledge.

To encourage innovation, some central funds may be a useful incentive, particularly for units who do not have the capability to pursue outreach independently. Similarly, access to recommended production capabilities might require some initial subsidy to encourage the development of quality products.

Concluding Remarks

At the heart of a number of discussions that occurred within the subcommission was the question of the role of a university as a physical environment versus the types of educational experiences that might exist online. Will there always be a need for universities such as the University of Michigan that offer a broad range of educational opportunities? We believe the answer to this question is "yes." The University of Michigan as a place for inquiry, for research, as a base for service and outreach will endure. Some experiences can only occur in settings in which there are face-to-face interactions with scholars. These physicists, philosophers, urban planners, physicians, and engineers impart not just facts, but impart a methodology for future education, the culture of education, the human context of education, and the emotional sphere that occurs within a human situation.

Consequently, while our historical imperative may be to be inclusive, wide-ranging, and to create permeable boundaries, this imperative can only be realized to the extent that it builds on the University's intrinsic and fundamental existence in time and space.

Notes

1. The name "eC2 Subcommission" was created to capture the two "C's" of electronic outreach: "commerce" and "community"—the latter taken very broadly, as we trust the report will show.
2. Media Rights Task Force. Final Report. July 1999. http://www.umich.edu/~provost/reports/finalrep.html