

"FREE TRADE" IN HIGHER EDUCATION

The Meta University

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ABSTRACT

The Internet can be a tool for increasing access to education while also maintaining or improving the quality of students' learning. But if information technology is "bolted onto" existing programs, instructional costs increase. Instead, higher education must learn to use technology to disaggregate and disintermediate some of its current instructional programs and to recombine the resulting components into more flexible services that can compete in an educational "free market."

KEYWORDS

distributed instruction
virtual university
asynchronous learning networks
National Learning Infrastructure Initiative
Internet 2

I. INTRODUCTION

Only a few years have passed since modest federal investments in NSFNet provided leverage for a much larger total investment in campus-based network infrastructure. These investments by higher education and a few key federal and corporate partners were designed to enrich the nation's research infrastructure, but they also quickly resulted in a range of unanticipated, broadly useful applications in the global academic community. The result was the first general purpose (global) Internet. Soon thereafter, the Internet became an integrated set of inter-networking resources and services based on open, de facto standards and offered by an array of competing providers in a commercial environment now exhibiting many of the features of a commodity market. The World Wide Web (Web) and its attendant browsers, with their origins also in the research and academic communities, catapulted the Internet to its current revolutionary status both as a social and an economic phenomenon.

In light of higher education's role in the Internet revolution, it is ironic that instruction and curriculum --constituting colleges' and universities' core "business"-- remain largely unaffected by the revolution. After a decade of serious technical and pedagogical experimentation, systemic change is finally in the air. Early projects that pointed the way included mega-projects such as Andrew at Carnegie-Mellon and Athena at MIT and a host of smaller projects, all partially and generously funded by Digital, IBM and other companies. Leading today's systemic change are the Alfred P. Sloan Foundation's Asynchronous Learning Networks grant program [1], EDUCOM's

National Learning Infrastructure Initiative [2], IBM's Global Campus corporate/academic partnership [3], and the Western Governors' University [4]. In various forms and degrees, these initiatives imagine a global educational "free trade" zone in which students can customize a personal educational program from a broad range of flexible and relevant educational opportunities unconstrained by geography and one-size-fits-all approaches to certifying educational accomplishment. Indeed, the metaphor of "free trade" is a useful starting point for a discussion of the role of information technology in educational change.

II. THE PROTECTIONIST PARADOX

Business gurus are quick to point out that companies with an eye on the future sometimes have to be willing to introduce new products that directly compete with their prevailing core products. This wisdom can be expressed in gustatory terms: "If you protect your bread and butter at the expense of innovative new dishes, a competitor is likely to eat your lunch." But examples are more convincing than unappetizing metaphors, even if applying these examples to the mostly non-profit world of higher education requires caution. IBM's attempt to protect its mainframe business is often cited as evidence that protecting key products against internal competition can lead to overall decline in the face of rapid free-trade advances in technology, componentization, and mass customization.

A. A Business Example

As IBM was establishing a commanding market share for its new PC in the mid 1980s, its leaders decided to protect existing mainframe and minicomputer products by maintaining artificially high prices on IBM PCs and by constraining these PCs to take only partial advantage of the rapidly advancing microprocessor technologies being offered to their full advantage by PC-cloning companies. IBM's PC business was forced to carry the baggage of existing products and old business practices to its eventual detriment -- and to the detriment of the company's overall bottom line. Similarly and in an approximately parallel time frame, protecting the mainframe against the internal competition of the RISC technology developed in IBM labs allowed other companies to develop a commanding lead in a new market in which IBM's research had established a breakthrough lead.

The IBM PC business, started as an independent business unit, was not allowed to continue to develop on its own terms, and the RISC workstation business was constrained by existing products from the start. New leadership committed to vigorous re-engineering was required to dig the company out of the hole created approximately ten years ago by those executives who failed to realize that the role of business leadership is to create new wealth (new products), sometimes at the risk of placing existing wealth (products) in harm's way.

B. The Main Premise

It's time for colleges and universities to recognize that the Internet and its coming successor, Internet 2 [5], can serve as a new educational infrastructure. All packets are equal on today's Internet. In contrast, Internet 2 will offer, not only higher speeds and bandwidth, but the ability to differentiate selected packets -- those encoding video or sound, for example -- and to deliver them in a stream within guaranteed time limits. Internet 2 will be not just time independent, but attuned to any time dependencies of an application. The approximately 100 universities committed to its development are designing it to be, in part, a learning infrastructure to support new student-centered instructional offerings in direct competition with many of today's educational products.

In the public mind, campus-based courses and their aggregation into baccalaureate and professional degree programs constitute the primary product offered by higher education. The contact-hour, classroom-based course is higher education's bread-and-butter instructional product. Colleges and universities must confront the possibility that protecting the instructional status quo while trying to take instructional advantage of the network may be as problematic as protecting the mainframe against its internal PC competitor while expecting that same PC to compete in the open, commodity PC market.

Only by exposing traditional instructional programs to internally seeded competition will these instructional programs in altered form thrive in the face of new external competition in the instructional "market." This line of thought can be abstracted to the argument that only by trying to put an important service out of business through internally seeded competition will the provider of that service remain in business -- albeit with a variation on the original service.

It will be instructive first to examine the generalized idea in an academic context outside the hallowed domain of the classroom. Two service organizations face a similar need to put themselves out of some of their present businesses. Both the library and the information technology support organization face increasing demand, increasing costs, and the need to change or abandon some of their key services in response to challenges being driven by digital technologies.

C. Service Examples

The printed word will persist and, along with it, the need to collect and index books and other printed artifacts of human inquiry. The on-line word is nevertheless easier to publish, store, retrieve, search, and analyze. On-line collections will proliferate. No research library, however, can long afford to pursue a parallel policy of comprehensively collecting just-in-case books and journals while also aggressively investing in on-line collections. Research libraries must learn to band together to divide and conquer their shared problem so that no single library is compelled to remain in the bankrupting business of being a just-in-case repository of a comprehensive collection of ever increasing printed and on-line materials. That is, research libraries must collectively learn to put themselves out of their present business of unilaterally investing in comprehensive institutional collections.

Mediation is another primary function in the library professions. Information technology presents new opportunities for disintermediation almost daily as new search engines and indexing schema are announced in the on-line community. Surely those who mediate between library patrons and the information they seek would be well advised to put themselves out of their present business by focusing instead on the leading edge of on-line mediation in order to advance continually the art of disintermediation -- their new business.

In a similar manner, the information technology professionals who support "end users" should find ways to put themselves out of their current business. They should focus on deploying technology to disintermediate the labor intensive mediation services they now offer to help users make the most of their computer/network systems and applications. No institution or organization can long afford the rising costs of labor-intensive help desks and similar services as the complexity of computer and network systems increases and the demand for help spirals upward. (This near-crisis situation in campus information technology organizations is compounded by the academic tradition of trying to support too many different combinations of hardware and software.)

These examples illustrate the need for -- but admittedly not a plan for -- displacing some of today's academic services with new ones. It is time to turn in greater detail to higher education's core product: instruction.

III. DISTRIBUTED EDUCATION

It will be ironic if higher education, which pioneered the Internet and is helping to lead the way toward the next-generation Internet through the Internet 2 Project, fails to adapt its instructional programs to take advantage of the global network. Several opportunities come to mind:

- A college or university can reach new markets of learners by extending the reach of its instructional programs beyond the limiting campus boundaries of the classroom, library, and laboratory.
- Asynchronous communication technologies and emerging synchronous communication and application-sharing technologies (e.g., Internet 2) can be used to enrich student-to-student and instructor-to-student communication and collaboration.
- More responsibility for learning can be shifted to the student through the use of network-delivered immersion learning materials. Courseware, simulations, case studies and other instructional software can engage the full range of the student's human senses and include some degree of self-assessment. These possibilities can be captured in the term learningware to signify a shift in emphasis from teaching to learning.
- An institution can reduce or contain its overall instructional expenses by disaggregating its instructional programs to preserve and enhance core institutional strengths and otherwise to offer network access to necessary learningware and related expertise through contractual partnerships or outsourcing arrangements with other colleges, universities, and companies. Technology supports modularity and flexibility, and these in turn make it easier to customize instruction and to be explicit in choosing to offer or not to offer -- perhaps to outsource instead -- certain courses or even certain degree (major) programs.

A key word in each of the above declarations of opportunity is *can*. How to seize these opportunities is another matter. Programs such as EDUCOM's National Learning Infrastructure Initiative, the Sloan Foundation's Asynchronous Learning Network Program, and IBM Global Campus services are helping institutions engage the how.

The phrases *distributed instruction* and the more comprehensive *distributed education* better capture the implications of the new opportunities outlined above than do the phrases *distance instruction* and *distance education* which, in their frequent connotation of video delivery (interactive or not), seek primarily to remove the constraints of distance from the prevailing contact-hour lecture model of instruction and sometimes to relax the constraints of residency in degree programs. Distributed education encompasses distance education but reaches further to imagine a global disaggregation of instructional resources into modular components of excellence which can be reassembled by any organization in the "business" of certifying quality-assured learning accomplishment (certificates and degrees). The result should be a conveniently and affordably accessible, enriched educational environment that integrates the networked delivery of learningware and asynchronous and synchronous conversations within learning communities of student apprentices, their expert mentors, and their educational and career advisors. Distributed instruction is at the heart of a *learning society* -- a society (organization, nation, state) governed by the democratizing principle that everyone will have affordable and convenient access both to the means to learn and to the opportunity to certify that learning occurred.

Society expects higher education to link its curricula more relevantly to social and economic needs. Society also expects higher education to become more flexible in its course and degree offerings in order to meet new educational needs. Rapid changes in the discipline areas of knowledge, along with rapid growth in the volume of the overall knowledge base, are fueling a growing emphasis on life-long learning and learning to learn. Moreover, not all students are interested in a residential experience. Many consumers of instruction express tightly focused, self-selected learning objectives. This is especially the case with non-traditional learners and life-long learners who may have legitimate educational needs neither relevant to, nor easily accommodated by, either the time-and-place constraints of traditional campus-based study or the time constraints of multiple-year degree offerings. The promise of distributed education is to increase access to instruction, to enhance the quality of students' learning, and to reap a better overall return on investments in education.

These ideas are not new. This author and many others have been writing about them for several years. Experiments abound, many focused by grant or business opportunities, such as the Sloan Foundation's Asynchronous Learning Network Program and IBM's Global Campus, both of which are viewed by higher education's leadership chiefly as opportunities to reach new markets or to enhance service to primary markets. In contrast, the new Western Governors' University is often perceived as a threat, primarily because it is not centered in existing educational institutions and because it plans to decouple instruction from the certification of learning. In other words, the prevailing instinct in higher education is to circle the wagons to protect existing instructional programs and models, rather than to seed internal changes possibly harmful to the status quo but designed to hasten the arrival of the learning society/economy envisioned by the Western Governors.

IV. QUALITY IS RELATIVE, NOT ABSOLUTE

Any attempt to marshal support for educational change must confront the fears that lead educators to resist change. These fears, whatever their true foundation, are usually expressed as concerns for the quality of education. Any discussion of quality, however, should be a discussion about trade offs -- about how good is good enough. A new technology seldom replaces one human construct by another. Instead, a new technology usually offers new opportunities to trade off the relative advantages of one construct against another -- the spoken word against the published word, the published word against the video experience incorporating the spoken word, and the sum of these against the new communication possibilities being shaped by the Internet and its coming successors. Some people choose TV news over the newspaper for the convenience of a summary report that can be digested with dinner. Others choose the newspaper for its depth of coverage. Still others choose both -- and wonder why there is so little time in their lives. Modern life sometimes seems to be driven by the tyranny of trade offs! Here are some that concern educational quality.

A. Face to Face Versus Other Forms of Communication

People working together toward a common goal often face limitations of time and place. Advances such as the telephone, conference calling, and two-way videoconferencing have helped relax these constraints, though they cannot completely replace the advantages of face-to-face meetings -- even as they mitigate some of the less pleasant disadvantages. The Internet offers a range of new communications opportunities to organize human activities on the basis of shared interests rather than proximity. Primary examples are the globally dispersed communities of scholars and researchers who share an intense interest in a highly vertical area of specialization. Along with providing time-independent asynchronous communication, the Internet lets these

communities share globally distributed resources. Few scholars care whether these opportunities are better or worse in an absolute sense than face-to-face opportunities for collaboration. Most will continue to attend annual disciplinary society meetings and seize sabbatical opportunities to work person-to-person with colleagues at other institutions, while also participating fully in convenient and affordable electronic opportunities for collaboration.

A disciplinary listserv is an opportunity to *expand* a learning community of experts. A course is an opportunity to create a learning community of novitiates. This subtle distinction may explain why faculty members, as instructors rather than scholars, have been less creative in embracing the options provided by the Internet. The word *Internet* makes some instructors bristle, not because they fear the networked delivery of learning materials, but because they have justifiable concerns about a "wired" future that diminishes the human connection between student and instructor. They do not wish to lose the conversational and social aspects of learning, which allow for rich sensory cues and spontaneous give and take. Face to face, humans switch tasks and modes of communication seamlessly, but today's computers and network services do not support an integrated, seamlessly rich palette of communication and application capable of supplanting proximity. But in many educational contexts and for many learners, the implied trade off is entirely acceptable.

Even as emerging network technologies and applications (e.g., Internet 2) advance the electronic environment for communication and collaboration and thus the opportunity to create course-based distributed learning communities, there will remain institutions and students with a common interest in the prevailing campus-based model of education. Face-to-face instruction will continue to prevail in some forms of the residential experience at one extreme of the spectrum of distributed educational models. Even there, it is reasonable to question whether the contact-hour lecture and its adjunct office hour optimize the quality of the time an instructor spends with students. It is also reasonable to inquire about enhancing or cost-reducing roles for technology and about distributed education's possibilities for sharing and outsourcing instructional resources.

B. Price As a Determinant of Quality

Many would argue that the reason for attending a prestigious liberal arts college or private research university as an undergraduate lies more in the delayed value of having gone there than in the education received while there. It is less a case of getting the education you pay for than of paying for what you really want: membership in a lifetime club which offers continuing social and economic advantages to its members. This argument ignores the strictly educational advantages that might reasonably be expected to accrue to a high tuition base, and is not meant to suggest that educational expenditures have no bearing on educational quality. But the trend toward distributed education is in part a response to the escalating cost basis of the traditional higher education enterprise and the possibilities for cost containment enabled by technology. Indeed, if the concept of a quality liberal education based on educational rather than socioeconomic precepts is to survive as a broadly available common-good privilege it must do so on terms that do not equate quality with price but instead seek to contain costs.

The challenge to institutions committed to an affordable baccalaureate experience incorporating general education requirements -- especially if they are public institutions -- is to harness some of the competitive advantages of distributed education. Can the network help deliver a better, faster, undergraduate experience? Doing so will be difficult as long as an institution insists that a one-size-fits-all, take-it-or-leave-it four-year degree program based on the contact hour and aggregating the goals of liberal education and the major is the only means for students to acquire a higher education. Surely some potential students will choose to leave it if they have alternatives

which relax the limitations of requirements based, for example, on geography, residency, and time in a seat -- the contact hour.

C. The Four-Year Undergraduate Experience Versus Other Educational Constructs

The heading above speaks to the degree to which higher education has aggregated its concepts of educational quality into a one-size-fits-all model with little room for variation. The four-year liberal arts education captures many prevailing ideas about educational quality. In a form that compromises only some of the advantages of a liberal arts college, this experience is a partially subsidized privilege widely available to students in most public universities. Even commuter campuses, which have largely abandoned the socializing overnight aspects of the residential experience, have not disaggregated the other three essentially separable features of the prevailing undergraduate model: the four-year requirement based on the currency of semester or quarter hours, the contact-hour metric for measuring instructors' time with students, and the classroom lecture for deploying that time.

Whatever the quality possible in the narrow range of variations on the prevailing undergraduate model, it is already a trade off against the one-to-one tutorial quality of the Oxbridge model in the interests of the institutional productivity and cost containment enabled by the mass-production classroom contact hour. How good is good enough?

Surely some institution will deploy the new human communications and content delivery potential of the networked computer to recapture many of the most desirable features of the Oxbridge model in a newly designed undergraduate experience. Perhaps this new program will be relaxed in its insistence that the classroom contact hour is the best use of instructors' time with students and will be based on the idea of accumulating a portfolio of judged written and oral argument and problem solving experiences. Perhaps students will be expected to pass exit exams but will be free to prepare for these by drawing on a variety of network resources for self study and by joining a variety of supporting academic discussion groups anchored by disciplinary experts. Perhaps there will be no, or a reduced, residency requirement. Perhaps this program will pay attention to both breadth and depth but will confer a bachelor of arts and sciences degree, rather than a degree in one of large number of specific majors, and will be achievable for most students in less than four years.

Most important of all, it is time to recognize without prejudice that there are new and pressing educational needs that have little to do with the four-year undergraduate experience. Professional education has recognized this to some extent, and community colleges have been meeting many of these needs for years. More is needed, however, as the demand increases for just-in-time highly targeted education and training, on-the-job education, life-long recreational learning, and other educational opportunities. Mainstream higher education can choose either to participate in these opportunities as part of a growing globally distributed educational enterprise or to remain primarily dedicated to its current degree configurations based on a teaching infrastructure of classrooms and contact hours at the risk of becoming the teaching tail that does not wag the learning dog. Distributed education's imperatives of disaggregation and disintermediation are keys to the new market-expanding possibilities for higher education.

V. NEXT STEPS TOWARD A DISTRIBUTED EDUCATION FABRIC

A. Disaggregation

Disaggregation has been a common thread throughout. Here are some key themes of disaggregation in summary form.

Consider decoupling instruction and assessment. The marriage of teaching and testing is more unnatural than natural from the perspective of instructor as mentor or guide. There are many instances when professorial time would be better spent in assessing an instrument of assessment than in assessing performance on that instrument. Indeed, there are already many instances of national or state professional "board" exams and national examination programs such as the Advanced Placement Program in which the ultimate assessment of accomplishment is independent of instruction and is not even linked to any particular instructional offerings. The opportunity is for institutions to be judged by the independently assessed accomplishments of their client learners, while displacing the labor costs associated with grading. The Western Governors understand the power of this idea.

Disaggregate the costs of instruction and curriculum. It is difficult to make judgments about academic program costs relative to program value. To do so requires identifying the true costs of academic programs. In particular, cross subsidies need to be identified and consciously continued or eliminated. For example, freshman math courses presently subsidize the Ph.D. program in math, and perhaps even in other disciplines, in many research universities. This may be good or bad. In any case, wise decisions about where to invest scarce resources require the explicit recognition of these kinds of cross subsidies which typically introduce static into discussions about new models for delivering instruction and certifying learning. For example, an attempt to alter the delivery model for elementary math courses at research universities can raise the question of how to support math Ph.D. students if not by paying them to teach these basic courses. Such questions may appear to be about priorities: to offer the best ratio of learning to instructional costs in elementary math courses or to preserve the Ph.D. program in math? But market forces are likely to overwhelm any attempt to protect the Ph.D. program in a basic academic discipline when the market for professors in that discipline will remain a buyer's market for the long term. In any case, not to offer the best ratio of learning to instructional costs in elementary math courses in the emerging globally distributed educational market is to invite another institution or organization to compete and win your research university's elementary math business -- with a potential downside for the Ph.D. program anyway.

Disaggregate the various roles of the faculty. Although the role of the faculty varies by institutional type, there are some basic curriculum-related responsibilities common to the institutional expectations attaching to most faculty positions: organize and "package" knowledge for student learning through a course experience, deliver that knowledge in the course context, assess student performance, advise students on their educational and career goals, and formulate and govern institutional requirements for degree certification. Each faculty member may perform better in some of these roles than in others. Distributed education recognizes this and assumes that instructional professionals are deployed where need and talent intersect. For example, colleges and universities seldom invest in the development of curriculum materials -- textbooks and learningware. Until they do or until the textbook publishing industry (or its Internet-age replacement) invests significantly in the development of network-delivered learning materials, distributed education cannot succeed on a large scale. Many believe that there will emerge "superstar" authors of learningware earning significant royalties from major learningware studios and not otherwise engaged in the instructional process. In any case, this is but one more example

of the disaggregation of one-size-fits-all educational practices, not unlike the decoupling of the traditional faculty roles of instruction and assessment.

Consider decoupling general (liberal) education and the major. The dual requirements of breadth and depth are not necessarily justified by the goals of every educational program and the mission of every four-year institution. Decoupling these two sets of requirements at four-year institutions, when appropriate, could have the effect of reducing time to degree while offering some students educational opportunities more relevant to their career-driven aspirations and offering others a flexible approach to personal growth through the breadth of a general education. Indeed, there is a rising demand for general education as a life-long personal-growth pursuit and, thus, a new "market" for those institutions willing to embrace technology-enabled approaches to liberal education unfettered by the extremes of residency and time-to-degree requirements.

B. Disintermediation

The preparation and delivery of the contact-hour lecture is labor intensive and thus expensive. In contrast, there are many instances in which the networked delivery of the same content in the form of learningware could be more involving and engaging to the learner -- a more compelling self-study environment than a textbook coupled with lecture notes. Bolting learningware onto the classroom lecture can enhance learning, but only at added cost. The opportunity is to move away from the lecture by coupling self study with just-in-time Oxbridge-style intervention in the faculty office or through network communication tools. The development of self-study materials - - learningware -- and independently administered assessment vehicles could be leveraged across many institutions and millions of learners to contribute considerable savings to the overall national costs of instruction in many high-enrollment areas of study, such as the basic mathematical competencies. Almost every college and university currently incurs noticeable remediation costs which aggregate to a national cost of shameful proportion. A distributed educational fabric with its conveniently and affordably accessible resources could permit the large-scale outsourcing of remediation to those institutions and/or companies, which choose to focus there.

C. Instructional Management System

Successful instruction results in learning and typically depends on more than the self study of learning resources such as textbooks or learningware. Instructors provide guidance, a framework for learning, and sometimes motivation. Instructors must have access to potential learning resources for pre-selection review based on their learning objectives for students. Resources must be selected and made available to students, for a fee or not. Assignments and schedules must be communicated to students. Instructors must diagnose student progress and intervene appropriately. Student-to-student and instructor-to-student communication must be available. These "instructional management" functions become extraordinarily important in a distributed educational environment in which learning resources, learners, and instructors might be distributed across the global network. This is the purpose behind the Instructional Management System (IMS) being developed under the aegis of EDUCOM's National Learning Infrastructure Initiative as a set of protocols, middleware, and prototype client software. The IMS will be placed in the public domain, perhaps through the WWW Consortium, as a candidate for an open, evolving standard designed to seed the market for learningware by providing a common set of programming interfaces for the interoperability of modules developed by different parties. A range of commercial and no-profit parties are participating in the IMS project, which is described at <http://www.imsproject.org>.

D. Ubiquitous Network Access

Distributed education encompasses courses and curricula that utilize synchronous and asynchronous network communication tools and network-delivered learningware and other distributed instructional resources as an affordable means to increase access to education and to transfer more responsibility for learning to the student. The participants (learners, instructors/mentors, and advisors) and resources (learningware, library materials, laboratory instruments, for example) for a learning community may be distributed across the network and should be accessible to every participant from anyplace at anytime. Distributed education thus assumes convenient and affordable access to the Internet in the homes and workplaces of participants.

Most colleges and universities are moving rapidly to provide convenient access to their networks from any place on campus, but access from off campus is another matter altogether. Education is currently at the mercy of commodity Internet service providers who have yet to step up in any significant way to providing more than 28.8 kbs modem connections into the community at affordable prices. Even these connections are often tightly linked to a particular geographic region constraining the movement of those involved in a particular distributed learning community. This problem must be resolved if distributed education is to flourish.

The IBM Global Campus Program includes, among its other services, provision for connecting to IBM's global network with its thousands of community access points to provide nearly universal access opportunities for participating institutions and their students. The Internet 2 Project will expand the power of the communications internetwork among participating institutions and introduce new synchronous communications options. Two-way technology transfer is both an assumption and a goal of the project, and the hope is that technology transfer will result in new, advanced commodity network services into many local communities.

E. Collabotition

Few, if any, current institutions of higher education have the resources and expertise to create a comprehensive program of distributed educational opportunities. Institutions will have to divide and collectively conquer the problems of migrating to nationally and globally distributed network-based educational offerings if mainstream higher education is to participate in the growth of the educational mainstream. This *collabotition* --collaboration and competition-- among institutions will have to include changes in policies that govern the inter-institutional exchange of academic and financial credits and a host of other business practices that are inimical to the success of distributed education. Educational free trade will require its counterpart to NAFTA. Courage will be required on the part of higher education's leaders to begin to form the kind of partnerships of competitive convenience -- the *collabotive* arrangements -- that arise daily in the corporate community where the protectionist paradox is well understood and pre-competitive partnerships are an integral part of the competitive restructuring that is well underway.

VI. CONCLUSION: THE META UNIVERSITY

Technology can render irrelevant many of the traditions and practices that today protect weak along with strong instructional programs. The Western Governors' initiative signals the disaggregation and disintermediation that is coming -- free trade in an open higher education market. There will be many opportunities for shopping around for educational "components," whether non-profit higher education participates or not. Few, if any, institutions will be self

contained. Today's strongest institutions will grow stronger by focusing resources on areas of excellence while outsourcing in weaker areas.

Strong and aggressive institutions and companies will band together into *comprehensive meta universities* -- non-profit and for-profit brokers of comprehensive educational services predicated on an approach to quality control that is flexible enough to offer degrees or certification by reaggregating instructional and assessment offerings from many different sources. These meta universities will exist on the network whether or not they "own" the traditional educational infrastructure elements of classroom, library, laboratory, and faculty. Through its site on the network, a meta university will

- provide information about educational services provided by many partner institutions and companies,
- broker authenticated transactions for giving students access to those services, and
- maintain a database portfolio of accomplishment and certification for each of "its" students, perhaps with provision for the student's record to be assembled in a variety of permutations as evidence of multiple, comprehensive educational accomplishments - degrees or certificates from participating organizations or from the meta university itself.

The paradox in all of this is that the costs and complexity of technology and the increasingly slim financial margins on which higher education will sink or swim demand, on the one hand, strong top-down coordination and inter-institutional collaboration to assure effectiveness and, on the other hand, investments in a bottom-up entrepreneurial environment to ensure that innovation and competition will flourish. Or, in less paradoxical terms, the invisible hand of educational leadership will be required to ensure that technology-enabled innovation and competition create new national educational "wealth" rather than costly chaos within the higher education community.

Leadership external to higher education will also be needed. While a global free market in education is desirable, policy leaders such as the Western Governors should keep in mind that deregulation designed to open markets and encourage competition does not always lead to improvements in quality. Who enjoys sitting in a middle seat in coach class of a deregulated passenger-jet service? Unless the quality of learning is preserved or enhanced in the balance, it will not be in the national interest to increase access to education while also containing its cost.

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Bill Graves earned a Ph.D. in mathematics from Indiana University in 1966. In 1967, he joined the faculty at the University of North Carolina at Chapel Hill, where he is Professor of Mathematics and Professor of Information and Library Science. He has served the University in various capacities, including two terms as Associate Dean for General Education, an interim term as Vice Chancellor for Academic Affairs, and a five-year term as Associate Provost for

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