Higher education around the world must undergo a dramatic makeover if it expects to educate a workforce in profound transformation. In the forty years between 1950 and 1991, the percentage of skilled workers in the workforce increased by 25 percent. Yet this unprecedented feat in economic history is expected to be nearly duplicated in the nine years between 1991 and 2000, when the same sector of skilled workers is projected to increase by 20 percent. The remarkable acceleration in rate of change summarizes the fact that since 1950, the manufacturing workforce has declined from nearly 40 percent of all employees to less than 18 percent while the service sector has increased from less than 14 percent to over 35 percent. This dramatic upheaval in the labor force and, therefore, in its educational and training needs reflects the great shift that has taken place in the corporate world: from an overwhelming reliance on physical capital, fueled by financial capital, to an unprecedented focus on human capital as the
primary productive asset. Rather than relying on brick-and-mortar factories and plants, successful companies today are ‘reinventing people and breaking barriers’.

The upheaval in the workforce also reflects the explosion of information technology (IT) and the Internet. Technology expenditures have come to dominate capital spending, and the accompanying technology skills have half-lives measured in months, not years; knowledge is accumulating at an exponential rate; IT affects everyone; information—its acquisition, management, and deployment—is the key competitive advantage; and the speed of the Internet’s penetration has transformed each consumer into a specific marketing target, making it possible for e-commerce to access 26,000 continuing education students) but also the country’s secondary institutions to collaborate with business and industry.

The contemporary disconnect between what traditional higher education provides, especially in research institutions and four-year colleges, and what want can be gleaned in part through a 1998 poll of the fifty state governors. The survey revealed that the top four items perceived to be most important were (1) encouraging lifelong learning (97%), (2) allowing students to obtain education anytime and anywhere via technology (95%), (3) requiring postsecondary institutions to collaborate with business and industry in curriculum and program development (77%), and (4) integrating applied or on-the-job experience into academic programs (66%). In contrast—and most telling—the four items judged to be of least importance were (1) maintaining faculty authority for curriculum content, quality, and degree requirements (44%); (2) preserving the present balance of faculty research, teaching load, and community service (32%); (3) ensuring a campus-based experience for the majority of students (21%); and (4) in last place—enjoying the support of only one of the governors responding—maintaining traditional faculty roles and tenure (15%).

Not surprisingly, a new education paradigm has arisen to fit the needs of our progressively more knowledge-based economy. Briefly, the education required today and into the future assumes that learners will need to be reskilled numerous times in their working lives if they wish to remain employed. Access to lifelong learning will therefore become progressively more critical for both employees and employers. Those who will find themselves pressured to provide or subsidize such learning will want to retain their workforce and remain competitive. This new paradigm is also based on the need to provide learning experiences everywhere, and that use the most sophisticated information and telecommunications technologies. Finally, this paradigm attempts to provide educational products tailored to the learner, and in order to be cost-effective, it emphasizes both branding and convenience.

It is not difficult to see why this new paradigm is being accepted by so many in both the public and the political worlds. A knowledge-based economy depends on networks and telecommunications technologies. Finally, this paradigm provides learning experiences that are continually accessible everywhere, and the goal of learning for most people is best achieved when treated as tactical (with clear, immediate aims) rather than strategic (with broad aims and distant goals).

By restricting its market to working adults full students must be at least twenty-three years old, as the University of Phoenix (UOP) educates a sector previously neglected or undervalued, e-commerce is a strategy. For instance, thirty-five to thirty-nine-year-old workers of the workforce make up only 3% of the enrollments of public and private U.S. higher education institutions, thereby making it possible for e-commerce to account for over 2.3 million jobs and nearly $100 billion in revenue. Thus education can no longer be seen as a discrete phenomenon, an option exercised only at a particular stage in life; information technology skills have half-lives measured in months, not years; knowledge is accumulating at an exponential rate; IT affects everyone; information—its acquisition, management, and deployment—is the key competitive advantage; and the speed of the Internet’s penetration has transformed each consumer into a specific marketing target, making it possible for e-commerce to access 26,000 continuing education students) but also the country’s secondary institutions to collaborate with business and industry in curriculum and program development (77%), and (4) integrating applied or on-the-job experience into academic programs (66%).

Four Most Important Issues:

97% encouraging lifelong learning
83% allowing students to obtain education anytime and anywhere via technology
77% requiring postsecondary institutions to collaborate with business and industry in curriculum and program development
66% integrating applied or on-the-job experience into academic programs
new economy are clearly not going to be likely to tolerate a just-in-case education that is not practical, up-to-date, or career-oriented. And perhaps this is outcomes oriented and centrally developed by subject-matter experts, within and outside the faculty, supported by the continuous input and oversight provided by UOP’s more than 6,500 practitioner faculty members, all of whom, although spread across the entire country and overseas, are individually integrated into the university’s faculty governance structure. This curriculum integrates theory and practice while emphasizing workplace competencies along with teamwork and communication skills—the skills that are well developed in the study groups that form an integral part of each course. Lastly, the critical observation made by Harvard’s provost in the face of the challenges that the new millennium portends, how durable is the UOP model? After all, it has inspired others. For instance, while content is quickly becoming king, the landscape is becoming increasingly populated with distribution systems; content parading as knowledge or information is thus becoming as ubiquitous as disloyal subjects.

This phenomenon is placing a premium on Web portals, online enablers, marketing channels, and information-organizing schemes.
Online enablers, the outsourcers who create virtual campuses within brick-and-mortar colleges, can provide potentially unlimited access to seemingly unlimited content sources.

To transform higher education institutions into totally unrecognized entities. Online enablers, the outsourcers who create virtual campuses within brick-and-mortar colleges, can provide potentially unlimited access to seemingly unlimited content sources. And through the marketing channels opened up by their e-commerce capacity, they can easily be expanded not only into educational shopping centers but into merchandise marts, focusing on a market of nearly 75 million potential users, 13 million of them college students who spend $90 billion annually on discretionary consumption.22

Online information portals can provide remote proprietary and nonproprietary educational content and, more important, can integrate into the brick-and-mortar campus information systems, providing the connectivity, functionality, and database management necessary to make available to the institution all the academic, administrative, financial, and student services, and possibly the content, necessary for operation. By providing institutions a way to outsource the technological infrastructure that automates the administrative tasks burdening every institution and its customers, these portals can reduce both the technology costs and the transaction costs while offering students levels of convenience that were undreamed of until now.15 They also can provide the wherewithal to add a shopping mall of educational and consumer goods to any campus.

The role played by portals and online enablers in the transformation of the traditional academy cannot be overestimated. Apart from the Amazon.com-like possibilities that they open for some higher education institutions, another way to appreciate their effect is to think of them in terms of the parallel represented by the shift of retail banking out of the branch bank to the ATM and then onto the desktop. Not only has the relationship between the customer and the process (“banking”) been transformed, but just as many banks can use the same ATM machine, many students will be able to replace or supplement their institution’s courses with courses or learning experiences—which can be exchanged for graduation credits—derived from any other accredited institution, corporate university, or relevant database. Although this should be a point of concern to the educational institutions addressing the needs of the new economy, the fears among the traditional institutions are so great that they have already undermined the ill-fated California Virtual University, they plague the efforts of Western Governors University, and I suspect they will continue to dash water on the overheated plans of the United Kingdom’s Open University in the United States. As long as local faculty members continue to control the curriculum, geography-centered campuses will have difficulty competing for new learners but they will also make it nearly impossible for these traditional-based virtual-campus conglomerates to reach their goals.

Which institutions, then, are likely to be the winners in the future, best meeting society’s expectations for higher education in the next century? Because staying ahead is critical to the University of Phoenix, let me return to it once more as a source for speculation. In light of the dramatic shifts taking place, UOP may be better able to serve the adult learners of the future by transforming a significant part of itself so as to function as a platform or hub that emphasizes its role as a “search engine” (i.e., as an identifier and provider of content), as a “portal” (i.e., as a gateway to databases and links to learning experiences), as a “rubric-meister” (i.e., as a skilled organizer of complex data), and as an “assessor” (i.e., as a recognized evaluator of content, process, and effectiveness whose assessments can help take the guesswork out of shopping for education and training). This is a legitimate proposal for any university that has prided itself on its capacity to innovate and to transform itself. The proposal is not legitimate, at least, as the one the railroads should have considered when confronted with the question, “Are you in the business of trains, tracks, and warehousing, or of transportation?” And we should remember the fate they suffered for their unanimous adherence to the former position. If, as any university that wants to survive into the next millennium must believe, the University of Phoenix is primarily in the business of education, rather than of brick-and-mortar classrooms and self-created curriculum, its transformations in the future should be—and no doubt will be—dictated primarily by what learners need, not by what it has traditionally done.

But before the openness of future possibilities seduces us into cobbling untimely configurations, a simple warning is in order. A proposal such as the one I have laconically described is not easily implemented even in an innovative university such as mine. After all, the University of Phoenix is fully aware that to serve its markets well in the future, it must provide a variety of delivery modes and educational products, but those IT and telecommunication products worthy of investment are not easily identified. For instance, although UOP pioneered
interactive distance learning as early as 1989, although it has the world's largest totally online, full-time, degree-seek-
ing student enrollment—with over 11,500 students and grow-
ing at more than 50 percent per year—and although UOP
prides itself on the effectiveness of its online degree programs
as measured by student performance and retention, it recog-
nizes that its experience and its new Web-enabled platform,
developed at a substantial cost, cannot in themselves guaran-
tee that UOP has a solid grasp on the future of interactive dis-
tance learning.

First of all, the evolution of distance education has not yet
reached its Jurassic period. Consolidation can be expected,
but the behemoths lie un-
formed and, I suspect, unimag-
inied. An acquisition that does
not entail a soon-to-be-extinct
technology is hard to spot when
technology is changing at warp
speed. And opportunities to in-
tegrate the next hot model are
easy to pass up. Only deep
pockets and steel nerves are
likely to survive the seismic
technological displacements to
come. That said, to serve its
markets and thrive, UOP, like
any other higher education
provider that seeks to survive in
the next few decades, will need
to keep its focus even as dis-
tance education begins to blur
with the edutainment and data-
base products born of the large
companies and the entertain-
ment and publishing gi-
rants. That focus, always omo-
ronically tempered by flexibility,
is most likely to be
on the use of any medium—PC,
television, Internet appliance—
that permits the level of interac-
tion that leads to effective edu-
cation and that can command
accreditation (if such is still around), premium price points,
and customers whose sense of satisfaction transforms them
into effective advocates.

Furthermore, the University of Phoenix will need to reag-
gregate some major parts of itself to form a centralized con-
tent-producing and wide-based distribution network, but it is
unlikely to be able to do this without some form of campus-
based delivery. Having already advanced further than any
other institution in unbinding faculty roles (i.e., in separat-
ing teaching from content development, and assessment),
UOP, without abandoning its physical presence of multiple
sites distributed globally, is likely to shape itself more along
the lines of a media company and educational production unit
than to continue as solely a brick-and-mortar university with a
massive online campus. With media specialists as guides, and
content experts on retainer, UOP will likely emerge as a mega-
educational system with widely distributed campuses, multi-
ple sites in cyberspace, and possibly a capacity for self-regu-
lated expansion based on its track record, its focus on mea-
surable outcomes, and its comprehensive, award-winning
quality-assurance systems.

As education moves toward the certification of compe-
tence with a focus on demonstrated skills and knowledge—
that is, on “what you know” rather than on “what you have taken”
in school—more associations and organizations that
can prove themselves worthy to the U.S. Education Depart-
ment will likely be able to gain accreditation. This increased
competition worldwide—from, for instance, corporate uni-
versities, training companies, course content aggregators, and
publisher-media conglomerates—will put a premium on the
ability of institutions not only to provide quality education
but to do so on a continuous and highly distributed basis and
with convenient access for those seeking information, testing,
and certification. In short, as education becomes a continu-
uous process of certification—that is, a lifelong process of earn-
ing certificates attesting to the accumulation of new skills and
competencies—institutional success for any higher education
enterprise will depend more on successful marketing, solid
quality-assurance and control systems, and effective use of
the new media than on production and communication of
knowledge. This is a shift that I believe UOP is well posi-
tioned to undertake, but I am less confident that many com-
plete, especially private, traditional academic institutions
will manage to survive successfully.

That grim conclusion leads me to a final observation: soci-
eties everywhere expect from higher education institutions the
vision of an education that can permit them to flourish in the
changing global economic landscape. Those institutions that
can continually change, keeping up with the needs of the
transforming economy they serve, will survive. Those that can-
not or will not change will become irrelevant, will condemn
mixed classes to second-class economic status or poverty, and
will ultimately die, probably at the hands of those they chose
to delude by serving up an education for a nonexistent world.

Notes
4. Education Commission of the States, “Transforming Post-Secondary Educa-
5. North Central Association of Colleges and Schools (NCA), Committee on Or-
9. Quoted by Robin Living, opening presentation, New Model Universities Con-

This article is based on the Clair Maple Memorial Address delivered at the Seminars on
Organizational Effectiveness and Future Directions (DEFED), report, 1995.
9. Quoted by Robin Living, opening presentation, New Model Universities Con-