The information technology lens on the future has always been a cloudy one. We see though the glass darkly, discovering later that we have understated the enormity of change wrought by existing or unimagined technologies while we have overstated the pace of change. At the heart of our imprecision is a profound debate about the role, the nature, and even more important, the content of technology. This debate can be traced throughout religious and literary history. The biblical tale of the Tower of Babel, Mary Shelley’s Frankenstein, H. G. Wells’s Time Machine, Robert Louis Stevenson’s Strange Case of Dr. Jekyll and Mr. Hyde, Arthur C. Clarke’s HAL in 2001: A Space Odyssey, and Michael Crichton’s Jurassic Park with its genetic engineers all debate the capacity of humans to control the technologies we create.
In this second phase, technologies cease being instruments that extend the virtues of the current order and instead become the harbingers and engines of a new order.

More recently, this debate has contrasted the argument of Princeton University Professor Stanley Katz with that of the late Martin Trow, a longtime professor at the University of California, Berkeley. Katz argues: “Technology is not something that happens to us. It is something we create.” He continues: “We must not confuse a tool with a goal. We must, therefore, be sure that technology serves the fundamental purposes of higher education.”

Katz’s characterization of information technology as a tool or instrument stands in sharp relief to the view promoted by Trow: “IT is embedded in and used by institutions that have a history. The historically shaped characteristics of universities are highly relevant to the ways IT will be used by—and over time transform—the existing structures of higher education. It is also likely that IT will cut its own channels, leading to the creation of institutions that differ from those of today, institutions where the weight of history does not condition and constrain IT’s use.”

Trow argued that although we may try to harness the tools to serve uses that fit our (historical) image, once the technologies are out of the toolbox they will—for better or worse—run a course that few, if any, of us ever planned.

Yet perhaps these opposing views are actually two parts, or phases, of an essential unity. Since the time when the earliest computers were powered on more than sixty years ago, computing and communications technologies have extended the human sphere of sensation from the subatomic to the cosmic. They have augmented our perception, accelerated our progress, and lightened a portion of our load. In the first phase of the Digital Age, computing and communications technologies have been our quintessential instruments. More recently, I would suggest, we have entered a more problematic, second phase. This is a phase that often follows an innovative shock or disturbance. In such a phase, some people cease to use the innovation as a tool in support of historically defined approaches and begin to reconsider the approaches themselves. In this phase, the inexorable logic of the disruptive innovation becomes too compelling for some to resist. Social conventions begin to crack, groan, and give way, and established institutions—held together by earlier technology, social convention, and history—stake out a niche, or evolve, or die.

During the Industrial Revolution, this was the phase when the vertical logic of factories powered by wind or water gave way to horizontal manufacturing methods made possible by the introduction of the steam engine. It was the phase when scribes and scriptorium monks were supplemented and ultimately marginalized and replaced by printing presses—an innovation that had the unintended consequences of spreading literacy in the West and liberating European learning from the Catholic Church. In this second phase, technologies cease being instruments that extend the virtues of the current order and instead become the harbingers and engines of a new order. During these times, our glass is particularly dark because, as Marshall McLuhan once observed, the past is dissolved before the future resolves.

The Instrumental (or Katzian) Phase

Some of us have witnessed the invention of the electronic computer, the birth of the Internet, the personalization of the computer, the creation of wireless networks, the miniaturization of computers, and the embedding of smart and talkative devices in our cars, our children’s toys, our pets, our packing materials, our passports, and our pacemakers—just to name a few places. We have witnessed the birth and death of the so-called New Economy. We have seen the videogame progress from platforms for paddling pixels back and forth across a screen to simulated environments so rich that they are becoming the training grounds for soldiers, pilots, physicians, and others. We hold more computing and communications power in our pockets than could ever have been imagined by the developers of ENIAC or Manchester’s Baby more than sixty years ago.

Many readers of EDUCAUSE Review have seen computing and communications technologies assimilated into nearly every aspect of their lives. More than 1.7 billion people—fully one-quarter of the population of the world—use the Internet. Sensors and supercomputers follow and predict weather patterns, implanted devices track livestock and monitor their health, and search engines comb through billions of pages of text to locate the information we need for accomplishing any purpose. We find and reconnect with friends on social networks, we organize political action on the Internet, and we make ourselves faster, smarter, better connected, and in many instances more satisfied than we were in the pre-Internet era. To a very large extent, computing and communications technologies have indeed been our quintessential instruments.

The Torrential (or Trowian) Phase

On March 31, 2009, the American comedian Stephen Colbert interviewed John Sturm, the president and CEO of the Newspaper Association of America. At one point in the interview, Colbert said “Knock, knock,” to which Sturm replied “Who’s there?” Colbert answered: “The death of the newspaper industry” Sturm then sputtered: “Not there.”

But Sturm was simply ignoring the knock at the door. In 2009, Americans witnessed the closure of the Chicago Sun Times, the radical restructuring of the Boston Globe, the sale of the Wall Street
Journal, and the sale of the top fifteen floors of the Manhattan headquarters of the New York Times. Newspaper advertising in the United States declined at a faster rate in 2009 than advertising overall.6 The decline of newspapers does not, of course, suggest either the decline of news or the demise of mass communications. Indeed, more than 330 million blogs have been indexed by Technorati since 2002, Google enjoys roughly 2 billion searches per day, and approximately 13 hours of YouTube content are uploaded every minute.7 The music industry too is experiencing shockwaves. The 2008 U.S. sales (in dollars) of CD albums (physical) declined by more than 25 percent in one year, while the sale of downloaded albums rose by more than 33 percent in the same period. The digital delivery of all music shipments tracked by the Recording Industry Association of America (RIAA) rose from 23 percent in 2007 to 32 percent in 2008.8 Likewise, as more and more television content is placed—legitimately or otherwise—on the web, cable television providers and satellite broadcasters wonder if their industry will be next. Finally, with the emergence of the Amazon Kindle, the Sony Reader, and the Apple iPad, book publishers too are being buffeted by torrential changes.

The Impact on Scholars, Scholarship, and the Scholarly Enterprise

It is time for those of us who are knowledgeable about both higher education and information technology to admit that we live in portentous times. We must balance two arguments. First, we may rightly argue that information technology has truly revolutionized the mission of higher education and is a prime enabler of the knowledge-driven era. The place in such an era for scholars and in particular for scholarship is secure. Second, we may also rightly argue that those forces that have doomed the current form of the newspaper, music, television, and book-publishing industries will soon be unleashed in education—particularly higher education. The stability of traditional higher education will be rocked by for-profit educators—whose share of the U.S. higher education market rose to 9 percent in 2009.9 The education industry will be further challenged by globalization and by home schooling, charter schooling, and other educational alternatives. And higher education will be disrupted by new—and in some cases breathtaking—technological capacities. We have entered the next, torrential phase of the Digital Age, when consumer expectations and technological innovations not only make new possibilities evident and desirable but also put old capabilities and investments at a competitive disadvantage.

This second argument should lead us to insist on starting and enabling an ongoing discussion of the possibility that information technology and the “consum- erization of everything” may represent both the greatest opportunity for scholars and scholarship in human history and the greatest threat to the scholarly enterprise in the thousand-year history of the Western university.

Scholars and Scholarship

Let’s begin with the question of the impact of information technology on scholars and scholarship. For this purpose, I use Ernest Boyer’s characterization of scholarship as consisting of discovery, integration, application, and teaching.10 With regard to scholarship, two trends stand out. First, as Clark Kerr observed, higher education “is ever more central to the evolution of society.”11 Second, the information and scholarly communication environments that are emerging in the Digital Age are empowering scholars and are enriching scholarship in palpable ways. This empowerment, enrichment, and enlargement are made possible by

- rapid and low-cost connection with others;
- tools that promote our capacity for multi-tasking, multi-processing, and otherwise dividing our attention;
- the interconnected and accessible complex of digital instruments and visualization techniques that make it possible for us to work at nano- or cosmic scale; and

- access to an abundance of easily discovered recorded knowledge.

These very new capabilities are destroying distance and are demolishing barriers of all sorts. They are liberating scholars and scholarship from many traditional bounds of culture, community, and practice. They are redefining or even eliminating the rationing of academic tools and resources (e.g., space telescopes, particle colliders). They are predisposing scholars to a scholarship of open content, knowledge, and learning. And they are liberating us all from the “busy-ness” of knowledge work.

Perhaps the greatest boon provided to scholars and scholarship by digital technologies is the last: the propensity of networked people and scholarly resources to negate the “busy-ness” of scholarship. The Internet has freed the scholar from much of the tyranny and expense of finding, acquiring, sorting, verifying, annotating, collating, validating, and classifying information. Before the Internet, fledgling historians, for example, spent considerably less time in the thrall of disputation with mentors and fellow students than they did in the tasks of looking endlessly through search aids, waiting for the machinery of inter-library exchanges of materials to issue forth, acquiring bona fides and letters of introduction to outside scholars, archivists, and other authorities, and awaiting permissions or refusals to gain access to collections. Only after collections were identified, grants were banked, bona fides were accepted, and travel visas were issued did the apprentice scholar earn the right to delight in finally gaining access to rolls of nearly unreadable microfilm. The tools of search only twenty years ago included a flashlight, and datasets were filed carefully in shoeboxes. Although there may be something to be said for the “slow roasting” required to perfect future scholars, this pre-Internet busy-ness likely detracted from the quality and/or quantity of the discovery undertaken, experienced, or realized, and it likely diminished the capacity of past graduate
students and accredited scholars to put isolated facts into perspective (i.e., to engage in the scholarship of integration).

Today, most branches of scholarship are facilitated by networks. The discovery of rich content is mediated and simplified by search engines and is regulated through electronic exchanges of identity information and credentials, via federated identity management. Textual or numerical data can be copied into databases, annotated, and linked to photographs, audio recordings, and other unstructured data. The results of these electronic interactions can be a personal scholarly library that is richly annotated and fully searchable using computer-based text analysis or data analysis. The liberating impact of digital technologies on the scholarship of discovery are even more striking in scientific domains, where digitization is allowing molecular biologists, physicists, astronomers, and others to parse data, share instruments, and reuse open-source software to decode the genome, map galaxies, study particle collisions, test pharmacological activity, and so forth.

Communications technologies are likewise making it easy for scholars to talk with each other. Not very long ago, scholarly relationships were mediated first through posted letters, later through academic journals, and only relatively recently through symposia and conferences. Correspondence was formal and slow and was too often filtered through ideology, politics, scientific doctrine, or professional rivalries. Although these filters have not been eliminated, most of the latencies associated with such correspondence have disappeared, with scholarly secrets being rare in the Digital Age.

Ease of communication is also enlarging the scholar's personal network and the tapestry of relations woven by scholars and their institutions. A good deal has been written about the benefits of "network effects" on the quality and quantity of work performed and about the benefits of rich connections for the experience of scholarly work. Regarding the scholarship of discovery, the enlargement of connections not only is permitting all scholars in a domain of work to know one another richly but also is allowing serious amateurs to become part of the scholarly endeavor. Today, for example, networked amateur astronomers map significant portions of the night skies in loose coordination with professional astronomers.

Information technology is similarly improving the scholarship of teaching by facilitating new modes of interaction between and among learners and teachers. These modes are inherently indifferent to hierarchies of all kinds. Just as information technology is pushing the busy-ness out of the scholar's life, newly empowered students are increasingly able to assume responsibility for major aspects of their learning. This liberates both the teacher and the learner to redefine their relationship to one another. Undergraduate research is just one manifestation of such a redefinition. The scholarship of teaching will not be enhanced so much by automating the administration of teaching through learning management systems as it will through a thorough reexamination of which aspects of the learning process are best suited for mediation by a peer, by a faculty mentor, or through learning objects and resources on the Internet. Optimizing the effectiveness of learning time is the key to moving toward the mass personalization of teaching.

The capacity of information technology to increase the number of—and the nature of—connections carries with it the potential to change the position of scholars and scholarship within a broad, diverse, and global ecosystem. Technologies that foster an abundance and multiplicity of relationships create or reinforce relationships across sectors of society. Some portion of these relationships become action oriented, leading inevitably to an enrichment of the scholarship of application. Today, for example, a clay model can be developed in a laboratory in California's Silicon Valley and then faxed, in three dimensions, along with performance specifications, to a commercialization facility in Korea, where the model can be prototyped, tested, value engineered, and ultimately commercialized. In another example, today's political scientists are likely to hold roles on campus, in campaigns, in think tanks, and on news networks. Scholarship is rarely contained within the enterprise.

In 1997, Frances Cairncross predicted the effects of technology: "New ideas and information will travel faster to the remotest corners of the world. Third world countries will have access to knowledge that the industrial world has long enjoyed." Indeed, information technologies and evolving social norms are making it possible for scholars to discover new and instantly accessible information on the global Internet, building a body of knowledge that is, as Clifford Lynch puts it, "constantly being reinterpreted, reintegrated, reorganized, and reexpressed" in ways that extend the original ideas. This capacity in the technology can be reasoned to improve the scholarship of integration. For example, it has become axiomatic in the sciences that the most interesting science exists in the interstitial spaces between scientific disciplines. Technologies—particularly those that make it possible to visually simulate objects and processes in nature—
are unrivaled tools of integration. The scholarship of integration has likely never been as effective as it is now.

The emerging global technology infrastructure, with its dependence on standards, is thus unlocking scholars and scholarship. Originally controlled and chartered by popes and kings, the scholarly enterprise is today becoming increasingly permeable. More important, from an access point of view, what now unifies scholarship is not the gated cities or chained books but is, rather, the openly available resources, tools, experts, and collaborative environments. Such environments open up knowledge, innovation, and learning, allowing them to become, to a great extent, transparently accessible. Openness, I believe, presses in a strong and positive way on all of the scholarships named by Boyer: discovery, integration, application, and teaching.

The Scholarly Enterprise

Although information technology has had an undeniably salutary effect on scholarship and on the life of the scholar, new practices—enabled by technology—threaten to erode scholarship, isolate scholars, and marginalize the rightful place of the scholarly enterprise in an age dominated by knowledge and innovation. Within the academy and in society, technology may be fostering new practices that are sharpening contradictions within the community of scholars. Is the modern college or university, for example, centrally important as a storehouse of knowledge? As a purveyor of expertise? As a cultural arbiter? Despite the fact that many of our finest institutions continue to lead society in these ways, the overall answer to these questions is “no.”

Despite Kerr’s observation, noted earlier, that higher education is “ever more central” to society, it is not clear that colleges and universities themselves occupy central positions. The Oxford University debate over contract mandates on classroom attendance by students (see below) constitutes just one piece of evidence of how the Internet is empowering individuals at the expense of institutions.4 Today expertise, moral authority, and opinion are just a click away. Scholars are no longer bound to an institution, and some have come to view the institution as merely a platform for the promotion of their global, multi-institutional academic goals and reputation building. When Boyer described the erosion of the campus community and the increasing isolation of the campus from its local community, the year was 1990, before the widespread adoption of the Internet. Since that time, U.S. society has witnessed the emergence of hyper-partisanship and other forms of academic and social fragmentation alongside the breathtaking creation of virtual organizations that are nearly always global in makeup.

As Trow anticipated, the tools of the Digital Age are eroding some of the practices and standards that glue institutions, just as they are making it possible to assemble new enterprises. Some of these standards and practices are basic. Institutions and their faculties will need to debate the very idea of original contribution in a world of ripping, mixing, and reusing. Plagiarism in a cut-and-paste and mashed-up world is increasingly hard to define. Standards of academic integrity are increasingly hard to enforce. The nature and assessment of evidence in a digital context needs to be rethought. These challenges are profound and go to the heart of what constitutes critical thinking, scholarship, scholarly standards, and the scholarly enterprise. Is the monograph, for example, simply a convenient format for putting ink on paper? Is it an outdated artifact of what McLuhan called “the typographic age”? Will the Tweet replace the tome as the unit of academic expression? Is the crowd inherently wise? Are the lines between credentialed scholars and gifted amateurs genuine boundaries, or are they artificial barriers designed to keep outsiders out of the ivory tower? These are questions straight out of Thomas Hobbes’s _Leviathan_ or Jean-Jacques Rousseau’s _Social Contract_.

Beginning in the twelfth century, the scholarly enterprise became defined as a place. In many cases, colleges and universities have become places of distinction, both beautiful and purposeful. However, as student preferences change and they express their desire to study in a variety of places, and as place-bound disciplines like chemistry become less dependent on labs and more dependent on high-performance computing, the value of an institution’s land and capital stock will decline. For students and parents of means and for institutions with particularly purposeful and bucolic spaces, little may change. But for students who are driven first and foremost by convenience and for institutions whose geographic circumstances are expensive but not distinctive, physical location may be an unimportant factor or a competitive millstone. As Trow predicted, information technology is giving rise to institutions different from those of today. Imagine the economics of an academic enterprise that is not dominated by the costs of buildings and grounds.

The elite higher education enterprise is not only a community of experts but also a storehouse of knowledge. In fact, the storehousing of knowledge likely gave rise to geographic communities of scholars, rather than the reverse. How, then,
will the role of the scholarly enterprise as the convener, curator, and steward of knowledge change in the torrential phase of the Digital Age? If one goal of the Digital Age is to make resources available anytime and anywhere, what are the drivers for amassing scholarly collections? Before widespread digitization, knowledge was scarce, and knowledge was expensive. Knowledge was preserved on paper and through other media that were perishable and that consumed physical space. Duplicating knowledge was costly and slow, and doing so required great expertise. Libraries took advantage of scale economies (space) and scope economies (scholars and librarians). Digital storage and the digital delivery of knowledge also come at a cost and also require expertise—particularly for scientific datasets. However, digital knowledge is easily replicated and can be retrieved instantaneously, typically without human mediation.

Therefore, much of the reason for locating collections of knowledge in centralized libraries at universities is open to challenge, especially with the emergence of Google, disciplinary grids, and now “clouds.” What remains is a set of important public-policy questions about the role of the academy in the mediation of access to—and in the curation, protection, and preservation of—knowledge.

If one goal of the Digital Age is to make resources available anytime and anywhere, what are the drivers for amassing scholarly collections?

In higher education, political power over the last millennium has moved from popes to princes to prelates to professors. In the Digital Age, this power is moving to the people. Two years ago, the dons of Oxford University debated whether or not to contractually obligate students to attend lectures and tutorials. The lecture theaters were, by many accounts, empty. Oxford students—like students everywhere—were increasingly meeting their educational needs with online resources and interactions. The means of educational production have moved to the individual student, with the lecture and the tutorial now merely two arrows in an increasingly abundant quiver at the learner’s disposal. This change has resulted in new teaching and learning practices and even in declarations of a “new epistemology.” Elements of this new epistemology include a belief in socially constructed knowledge and in the existence of multiple right answers. The new epistemology treats knowledge as a continuity rather than a dichotomy, and its proponents distrust the professed expert, the fixity of curriculum, and the equation of academic progress or attainment with the mastery of facts.

Ancient universities were developed in the context of scarcity: scarce talent, scarce capital, scarce source material, scarce space, scarce research instrumentation, scarce surgical theaters, and so forth. Not surprisingly, the prominent architectural feature of the historic European universities is their gates—designed not only to protect against natural or human calamity but also to separate the work of the academy from the noise and bustle of the marketplace. Ancient universities were, as Sheldon Rothblatt put it, homes for knowledge. These universities were also places of control: places where young scholars were apprenticed for years to masters and where some knowledge was open while other knowledge was restricted. But today the Digital Age is turning scarcity into abundance, it is eroding the exclusivity of the scholarly enterprise, and it is opening academic information and resources to all. Could a millennium-old jig be up?

Conclusions

The leaders of today’s traditional scholarly enterprises must rethink a number of the fundamentals behind the higher education institution. The good news is that the instrumental (or Katzian) phase of the Digital Age fueled a global understanding of the need to extend the rights to a higher education to every person of ability. The market for what scholars do and for scholarship itself has become global and universal. The other news is that the torrential (or Trowian) phase of the Digital Age will leave our higher education institutions transformed (intentionally or accidentally) and will give rise to new institutions and new educators who will deliver elements of the historic educational mission without the conditions or constraints of the past. The capacity of information technology to unbundle tightly integrated products like music CDs, newspapers, and magazines will push both new and traditional educators to uncover “high margin” elements of the college and university mission and to render them digitally while eschewing the demands of a high-cost capital infrastructure such as a university or college campus. Such providers will have a cost and likely a pricing advantage and will exacerbate the public-policy debate about the costs and pricing of traditional providers of higher education. Institutions—particularly private institutions—that are campus-dependent and comprehensive in academic scope but do not have state-of-the-art, well-located, and/or physically compelling campuses will thus be challenged in the years ahead.

For higher education institutions to succeed in the Digital Age, their leaders must devise and communicate a value proposition whose accent is on the institution. To accomplish this, leaders must recognize that branding will be essential. Brands are metaphors that convey the
essence of the student experience that is being promised. Some metaphors may accent Digital Age values such as openness, convenience, and comprehensiveness. Other metaphors may connote older values such as tradition, ivory towers, and personalized instruction. Whatever metaphor is chosen, institutional leaders must remember that even traditional values are not necessarily place-bound. If place is to remain central to an institution’s competitive position, then that institution’s investments and its messages must convey how place factors into the student experience. Institutions that do not or cannot compete on the quality or nature of their physical facilities must develop a different set of metaphors and messages and must learn to use the technologies of the Digital Age to extend their academic communities. Even though many of us associate significant learning experiences with traditional campus physical environments, information technology will allow others to create virtual environments that will emulate—and even surpass—these physical environments of the past.

Having uncovered a galvanizing metaphor that will guide the institution for the next decades, members of the scholarly enterprise will then need to formulate and affirm a general educational philosophy. Will members of the academic community be like Socrates when he railed against the introduction of writing because of its corrosive effects on our ability to remember? Will they cling to former Harvard University President James Bryant Conant’s view that “unless the educational process includes at each level of maturity some continuing contact with those fields in which value judgments are of prime importance, it must fall far short of the ideal”?20

Closely associated with the need for a general educational philosophy is the need for institutions to align around standards. The Internet is now empowering all ages of students, socializing them to a do-it-yourself style of discovery and learning. The Internet, however, is not an academy, and not all information is created equal. Indeed, Plato worried about allowing “our children to listen to any stories made up by anyone, and to form opinions that are for the most part the opposite of those we think they should have when they grow up.”21 We do need graduates who understand the difference through cyberspace?
between reinterpretations that extend or illuminate an idea and those that confuse, confound, or contradict the idea. Paul Courant, of the University of Michigan, articulates the standards challenge well. He warns: “Ubiquitous access to information poses a risk that the special character of scholarly work and understanding can often be skipped altogether, because it is now easy to obtain answers to questions that are ‘good enough,’ via any number of tools that are immediately, freely, and conveniently available on the web.”

If the goal of the scholarly enterprise is to distinguish itself as a player of significance in the scholarship of teaching, it will do so by preparing students to understand the nature of information, to evaluate evidence and its political, historical, scientific, and social contexts, and to study both information and evidence in rigorous and valid ways. In the ideal, a scholarly literacy of this kind would also be situated within an ethical context. In many ways, the recent economic failures are educational failures to the extent that very bright and well-educated people signed off on financial instruments they neither understood nor felt obliged to understand as long as they made money.

The successful college or university in this environment will reach consensus on the nature of its footprint. The Internet respects few boundaries, and competition for academic talent at all levels will intensify and become global. Choices about markets will be discussed in every major scholarly enterprise in the world, but few will be able to master the cultural demands that a truly global strategy places on an institution.

The successful scholarly enterprise in the Digital Age will need to develop a delivery system and also develop a delivery architecture that recognizes flexibility as its key quality. Two trends are now dominating the technical landscape of all businesses. First is the trend toward standardization and the related movement of institutional services and systems to “the cloud.” Second is the equally powerful trend toward the transfer of major elements of historically institutional infrastructure to the individual consumer. Both of these trends suggest the need for lightweight technical infrastructures that allow an increasingly mobile academic workforce to set up shop quickly, easily, and on an accepted standards basis. Like Apple, with its applications store, successful colleges and universities will need to discover, test, certify, and be ready to integrate the wide variety of software and hardware tools that their academic staff will want to use. At the same time, these institutions will need to support, share, rent, or otherwise provide rich and convenient online collaborative environments. Eventually, universities will compete with the likes of Google, Sony, and Disney; as a result, the production values of the core delivery systems may be a differentiator.

Eventually, universities will compete with the likes of Google, Sony, and Disney; as a result, the production values of the core delivery systems may be a differentiator. If we can once again create a galvanizing metaphor, a general educational philosophy, a set of carefully constructed and widely accepted academic standards, a consensus on the nature of our footprint, an emerging and flexible delivery system, and a portfolio of global partners, then higher education and its institutions will prosper in the Digital Age.

We are the “lucky” ones: as our old world dissolves, at least we can participate in resolving the new one. If we can once again create a galvanizing metaphor, a general educational philosophy, a set of carefully constructed and widely accepted academic standards, a consensus on the nature of our footprint, a supporting and flexible delivery system, and a portfolio of global partners, then higher education and its institutions will prosper in the Digital Age.

Notes
1. Stanley N. Katz, “Don’t Confuse a Tool with a Goal: Making Information Technology Serve Higher Education, Rather Than the Other Way Around,” in Maureen Devlin, Richard Larson, and Joel Meyerson, eds., The Internet...
Scholars, Scholarship, and the Scholarly Enterprise in the Digital Age

Richard N. Katz
(rkatz@educause.edu) is Vice President of EDUCAUSE and Director of the EDUCAUSE Center for Applied Research (ECAR).

14. There is a substantial literature on this subject. See, for example, Richard H. Hersh and John Merrow, eds., Declining by Degrees: Higher Education at Risk (2005), or Bruce C. Hafen, The Declining Influence of Mediating Structures in the Constitutional Framework (1985).
19. Boyer added: “They define the curriculum, set standards for graduation, and determine the criteria by which faculty performance will be measured—and rewarded.” Boyer, Scholarship Reconsidered, pp. 78–79.

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