

# digital convergence: now

## What's Your Digital IQ?

1. Who is Steve Case?

- a) The new Assistant Attorney General in charge of antitrust
- b) The hottest new country singer who became famous through Napster music swapping
- c) The MIT Professor who proposed putting the entire MIT curriculum on line for free
- d) The head of AOL Time Warner

2. What ever happened to HDTV?

- a) It never happened, technical problems
- b) It happened, many stations are broadcasting an HDTV signal but few are watching
- c) Congress and the FCC are still haggling over the rules and regulations for the new service
- d) It only happened in Japan

3. How easy is it for someone to spy on what you do online?

- a) Easy for your ISP, more difficult for others
- b) Hard for everyone if you use strong encryption
- c) Easy because what you do online leaves many tracks on your computer hard drive
- d) All of the above

4. How fast is a broadband Internet connection?

- a) About 56,000 bits per second
- b) About a million bits per second
- c) About one hundred million bits per second
- d) About a trillion bits per second

5. Who invented the Internet?

- a) Philo T. Farnsworth
- b) David Sarnoff
- c) Vladimir Zworykin
- d) The US Department of Defense

by w. russell neuman

While we struggle to understand the dramatic events of the last year, we face another equally dramatic and complex string of events associated with the changing technologies of human communication. But because these changes are more gradual and part of our mundane daily schedule, we see them as disassociated, unthreatening, and hardly noteworthy developments. Have you thought much about the implications of that new cable line into your home that can handle both the phone and your Internet connection? Should you?

It is unlikely Hollywood will soon produce an epic called Digital Convergence that will set the public abuzz about the "Information Revolution," but perhaps it should. It may be that the integration of information media into our work, our homes, our daily routines will rival political dramas and terrorist attacks in affecting our lives in the years ahead.

Answers to Digital IQ Quiz : P'S Q'4 P'E Q'Z P'1  
(full explanations at [magazine.lsa.umich.edu](http://magazine.lsa.umich.edu))

IMAGE BY EVAN HANSEN

# playing everywhere

## the death of distance

Those who remember hearing about Pearl Harbor on the radio may recall what a big deal a “long-distance” telephone call used to be. It was a costly, infrequent undertaking reserved only for special events. Distance mattered a lot. It made sense to conduct business locally. Distant friends were seldom seen or heard. During World War II, many got news from the front in newspapers and newsreels that were days, if not weeks, old.

Now, most of us think nothing of a live television satellite feed from Afghanistan or a phone call to Europe. Today, because of cellphone and home phone packages, many of us hardly consider whether our call is local or long-distance. When we gather information or transact business on the Internet we typically don’t know whether the website with which we are interacting is based in the United States or abroad. A New Zealand-based website costs not a penny more nor takes a fraction of a second longer to access than an American site for a surfer living in Ann Arbor.

Declining costs and barriers to communication and transportation only reinforce the phenomenon of “globalization”—the basic idea that the marketplace for goods and services is global. Need a rubber grommet for your new product? Two-day delivery via online ordering from Malaysia may save you a few cents each—never mind the grommet factory on the next block. Ever call for technical help at 3 a.m.? The bright and cheery voice on the other end might just have returned from lunch in India or Australia. Connection costs are minimal, so why make locals work the night shift? For many work activities, an inexpensive video- or teleconference can replace the hassle of travel to a face-to-face meeting. Today’s telecommuting and work-at-home provide flexibility and variety inconceivable just a few years ago, although many feel it unlikely that commuting will ever become an anachronism.

There is a predictable cycle of enthusiasm and skepticism about these fundamental shifts. Economically and practically, distance is declining dramatically as a factor in our lives. Socially and culturally, however, as we have recently been reminded, distance can make all the difference. Successful communication across ideological, cultural, perceptual, and

linguistic barriers requires more than high-speed fiber optics. Our understanding of the social barriers to human exchange lags well behind our mastery of the technical barriers and, not without reason, this disconnect is at the core of what UM communication studies students are confronting in their coursework.

When electronic devices communicate digitally, it turns out they are all speaking the lingua franca of ones and zeros. The key is installing intelligent chips in each device that can translate even a specialized encoding scheme for audio, graphics or data into a common digital tongue. This has important ramifications for the economics and the industrial structure of telecommunications and the mass media. Your high-speed computer can receive faxes, allow you to “phone” friends on the other side of the world for free, download a movie, or pay your bills.

LSA student Rakiya Labaran.



PHOTOS BY DAVID SMITH



## the new economy

After some sober rethinking of the prospects of a dot-com economy, we are entering a profoundly skeptical phase in the analysis of how new technologies might lead to a new economics (See "The Next.com?" p. 49). While nobody believes that laws of supply and demand no longer apply, new technologies nevertheless continue to affect our economics in important ways. For instance, service industries continue to grow faster than traditional manufacturing industries, and cybernetics and robotics continue to play an increasingly important role in increasing productivity in the manufacturing sector.

Throughout the 19th and 20th centuries, the technical processes of manufacturing underwent continual refinement and periodic paradigm shifts. Today, however, something more important is underway, and it actually does have a bearing on how supply and demand work. Skeptical? Please consider that the 2001 Nobel Prize in Economics was awarded to George Akerlof, Michael Spence, and Joseph Stiglitz for their study of "asymmetric information in market transactions." What does this mean? It means that sellers, for example, tend to know more about the product quality than the buyers. The classic case is used cars, especially the seller of the proverbial lemon.

Imagine a used-car salesperson claiming that a car was driven lovingly by a little old lady but once a week. The potential customer may doubt the claim and log onto the Internet and access any number of databases provided by government and private agencies to confirm the car's true condition. Not good news, perhaps, for used-car salespeople—but good news indeed for the buyer. What happens in an Internet economy is that communities of buyers and sellers share information and systematically reduce asymmetries. Remaining, however, is the challenge of making sure a "digital divide" does not exclude some from taking advantage of these new information resources.

## the next napster

In the spring of 2000, the University of Michigan was among 11 universities to receive a letter from a lawyer representing the rap artist Dr. Dre and the rock band Metallica. The letter

requested a ban on the use of the Internet-based music-swapping service Napster by students using University-sponsored networks, arguing that students swapping songs protected by copyright might put the University at legal risk. Although some universities did ban access to Napster, UM, as an institution in the business of the disseminating knowledge, was reluctant to block or censor any online material. Ultimately a court ruled that Napster was in violation of copyright laws and required it shut down until arrangements could be made to protect copyrighted material.

The Napster case is fascinating, in part because it pits the artists (or in this case, their lawyers) against their own fans. Although the sale of compact discs actually rose as Napster grew, distributors correctly perceived they were losing control of their product. Despite the fact that fans have been making and swapping audiotape copies of songs for many years with little fear of being hauled into court, it was now much easier to download a song—indeed, an exact digital copy—instantly from hundreds of thousands of the high-quality recordings available. Recently, in an attempt to circumvent such file-sharing, distributors have introduced their own online services offering

LSA students Coleman Johnson and Genevieve Geisler.



**SCHOLARSHIP STUDENTS** The LSA students pictured throughout this article are receiving scholarship awards. Max Helveston, a sophomore, is a recipient of the C. Robert and Mary Kidder Dean's Merit Scholarship. Genevieve Geisler is a senior and recipient of the Lois Anne Watkins-Herbert Dean's Merit Scholarship. Rakiya Labaran, a junior, is a recipient of the Haley Sperling Dean's Merit Scholarship and Rogel Award of Excellence. Coleman Johnson is a first-year student and a Dean's Merit Scholarship recipient. For more about LSA Student Scholarships, turn to page 51.



unlimited downloads for a modest monthly fee. However, dozens of new grassroots "Napsters" have recently emerged, and since most do not require a central database directory, it is not yet clear who the music-distributors can sue to stop the online swapping.

Napster likewise presents an interesting look at the much broader question of intellectual property in the digital age.

Computers and data networks make finding and transmitting information fast and easy. It is hard to keep secrets, and harder still to make money selling intellectual property. Newspaper, magazine, and book publishers have been experimenting for the past ten years with a variety of schemes to make money by selling their content online. Virtually all have failed. Microsoft's online magazine *Slate* has tried twice to convert itself from a free to a subscription service. If Bill Gates hasn't figured it out yet, we know we are confronting a real puzzler.

Both Napster and the intellectual property lawyers have a point. Without a source of income, the incentives for the production of news, arts, entertainment—and perhaps, even scholarship—will decline. But lawyers are

by nature conservative. They want to do it the old fashioned way: subscriptions and pay-per-view. It may be, instead, that creative new forms of economic exchange will evolve online: perhaps micro payments of a fraction of a cent per download will catch on. Perhaps musicians will make their primary income on concerts and paraphernalia rather than recordings. After all, music videos are made for promotion, rather than for sale to audiences.

## megamedia and antitrust

Regularly, we hear of yet another corporate merger joining two giants to create an even more powerful media conglomerate. Perhaps by the time you read this there will only be one telephone-movie-computer-publishing-satellite company left: Omni-All Worldwide might be a nice corporate identity. What is going on here, and why is the Department of Justice (working with the Federal Communications Commission and the Federal Trade Commission) approving most of these deals?

It is useful to look at this from the point of view of the media executives. These executives for the most part came to power when their telephone, newspaper, broadcasting, computer, and movie companies were monopolies—or one of a few dominant players—within their fields. The telephone company didn't compete with the TV broadcaster or cable company. They were entirely separate businesses. All that changes with digital convergence. Cable companies offer phone service. Phone companies offer dedicated cable lines for Internet access. When faced with new competition the corporate instinct is frequently to buy it out of existence, and that is indeed what is happening.

The difficulty in making antitrust law work is that the law is based on the assessment of effective competition within a clearly defined market category. Because the technologies are changing so quickly, so are the market definitions. In Washington D.C., AOL and Time Warner successfully argued that they should be allowed to combine because they didn't compete with each other. But on Wall Street, of course, AOL and Time Warner sang a different song, arguing that the combined companies would have new synergies and marketing power as media moves to the digital domain—part of a singular business of creating, transmitting and displaying digital information and entertainment.



## the digital revolution and lsa

This digital revolution—as with most socio-economic revolutions throughout modern human history—shows that the old rules don't work so well anymore. As a result, society may need to conjure up a new strategy to balance several competing and worthy social aims. With the death of distance and increased globalization, we may need to balance economic and security interests against the rewards of increased global commerce. In the case of the new economics and intellectual property, we need to experiment with new forms of markets and new media of exchange. If the companies that came to prominence during the 20th century are rigid and greedy about protecting their market share, they will fail. The laws of economics and of human nature haven't changed, but the press of digital technology will force us to put these laws to work in new ways.

It is perhaps easiest to learn about how a system works when you watch it creak and bend in response to strong pressures for change. Consequently, this is a great time to be a student of communication technology and policy. UM has been training young men and women in the fields of communication, film and journalism for many years. In the reorganization of the department five years ago a new emphasis was placed on an academic and scholarly program of communication studies rather than vocationally oriented training for careers in the media. The department has added two new endowed chairs in new media studies and is developing a new curriculum in media systems and technology and working on plans for a new research center.

The wisdom of that strategy is evident now as we recognize how quickly professional communication practice is changing in response to new

markets, new media and new economic realities. We plan to prepare students for the new century of media and telecommunications. They will do more than just take a job in an industry—they will take part in building the new media architectures and figuring out how to make them work.

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