

BizEd

TECHNOLOGY & SECURITY

JANUARY/FEBRUARY 2005

VeriSign's
**Stratton
Sclavos**

On Track to Build
a Better Internet

**Web Designs
That Work**

**Cyber Specialists
Guard the Ivory
Tower**



SPECIAL FOCUS:
TECHNOLOGY & SECURITY

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From the Editors

Guarding the Castle Keep

An author I know compares the process of writing fiction to the task of hacking his way through the jungle. Once he has chopped his way through dense overgrowth to the central clearing of water and light, he retraces his steps and makes the way smooth for the travelers who follow behind him.

Writing magazine articles, I've found, is a similar but more complex process, particularly if I've interviewed dozens of people and gathered information from a variety of sources. Then writing seems like clearing out an overgrown garden, yanking down vines, shoveling out excess, and pruning, pruning, pruning, till I'm left with one sculpted rose.

I was certainly feeling that way as I put together the article "Knights in Cyber Armor," which required me to organize massive amounts of information. This time, the imagery in my head was more technological than horticultural, as the twisting vines morphed into bulky cables and the bright blossoms twining around the trellis were replaced by bright console lights blinking around the mainframe. Still a lot of clutter to clear out, still a lot of bits and bytes to organize!

I assumed that many CIOs and IT specialists sometimes felt like gardeners themselves as they continually fought through a thicket of information to find the perfect solution to their cybersecurity needs. But the ones I talked to seem to be operating on a different botanical principle. Many of them view themselves more as the caretakers tending the mile-high thorn bushes surrounding Sleeping Beauty's castle. They spend all their energy cultivating a ring of defenses that guard the ivory tower from potential marauders—hackers, spammers, virus creators—while the innocents remain inside, peaceful, oblivious, and safe.

It's a role that makes perfect sense to Stratton Scavos, CEO of VeriSign Inc., which offers security and authentication services for the online world. He thinks constantly about the best ways to keep data protected, from providing products and services that safeguard computer systems to promoting education about how individuals can connect safely to their networks. He knows that the villains trying to breach the tower's defenses will only

become more sophisticated with time—which means the ring of virtual thorns must become practically impenetrable.

Metaphors aside, cybersecurity is a complicated but critical component of b-school success. Without it, anyone can breach the castle keep and steal the treasure inside.

And that treasure is not some simple rose, but the beating heart of the university's data center—worth protecting with every hedge and knight on campus. ■



BILL BASCOM

Sharon Shinn

Headlines

Letter to the President

The re-election of George W. Bush is likely to ensure a continuation of economic policies that are troubling to many business school professors across America. A month before last year's election, a group of professors at Harvard Business School in Boston, Massachusetts, composed an open letter to the president expressing their concerns about his fiscal approach. The letter ultimately was signed by 169 professors at business schools around the U.S. before it was mailed to the President on October 5.

Among its concerns, the letter notes that "real GDP growth during your term is the lowest of any presidential term in recent memory. Total non-farm employment has contracted and the unemployment rate has increased. Bankruptcies are up sharply, as is our dependence on foreign capital to finance an exploding current account deficit. All three major stock indexes are lower now than at the time of your inauguration. The percentage of Americans in poverty has increased, real median income has declined, and income inequality has grown. The data make clear that your policy of slashing taxes—primarily for those at the upper reaches of the income distribution—has not worked." The entire text of the letter can be found at www.openlettertothepresident.org, as can an addendum of names of people who wanted to sign the letter after the signing period was closed.

HBS professors decided to write the letter because "we were discouraged about the level of discussion of economic policy in the election campaign," says Louis T. Wells Jr., Her-

bert F. Johnson Professor of International Management. "There were promises of tax cuts without serious discussions of the implications of tax cuts. We realized we have a lot of alumni who hold important positions and who ought to be thinking about economic issues, if for no other reason than to understand how these issues affect their businesses. And we wanted to reach some of them and cause them to do some serious analysis."

The letter certainly drew attention. A couple of weeks before the election, the Web site had had more than 50,000 hits, while the letter had been reproduced or referenced on countless other sites. The letter also was covered by media outlets such as *The New York Times* and CNBC. Students, too, were most

supportive, sending notes and e-mails to register their approval—but the authors emphasize that the letter had no role in their classrooms.

"This is a personal activity that wouldn't enter into the classroom discussion," says David A. Moss, John G. McLean Professor of Business Administration. However, he thinks it's valuable for students to see their professors standing up in support of a cause they believe in. "One of the responsibilities of every academic is to engage in public debate whenever there's an issue relevant to his or her work," he says. "Clearly, we as academics are supported by the public, and we owe that in return."

Neither Wells nor Moss expected the letter to have an impact on the outcome of the election—although they hoped it would make voters think. "If a large number of people

walked into the voting booth better informed, that would have been more than we could have hoped for," says Moss. "How they voted would be up to them."

When drafting the letter, the authors attempted to lay out in neutral terms the current state of the economy and what factors have brought it to this state, and then let readers draw their own conclusions. But to the authors, the conclusions are obvious. Harvard Business School's famous case study method teaches that there are many alternative right answers, Wells notes. "But there are certain answers that are flat wrong, and we think the current economic policy is flat wrong," he says.

It remains to be seen if President Bush's strategies will change after his re-election—in response to this letter or other factors. It seems clear, however, that America's business school professors will be closely watching the president's economic policies during his second term in office.

Women and the Workplace

The attitudes that men and women hold about the workplace are explored in a new survey conducted by the Committee of 200 (C200), an organization of leading women business owners and corporate decision makers. *C200 Report: MBA and Early Career Women on Business* is part of C200's "Pipeline" research, a series of surveys that explore attitudes about business on the part of women at various stages of life. The survey of 933 MBA students and 807 MBA graduates was conducted for C200 by the Center for Women's Business Research. Among the findings:

■ **Business students and graduates hold low opinions about major corporations, both**



OF THOSE WITH MBAS, **56.8 PERCENT** OF WOMEN ARE LIKELY TO BE DISSATISFIED WITH THEIR JOB'S CAPACITY TO "MAKE THE WORLD A BETTER PLACE," COMPARED TO **44.5 PERCENT** OF MEN.



in terms of their ethics and the way they treat employees.

The survey shows that many MBAs from top schools are skeptical about the honesty and ethics of American business, while women are even more skeptical than men. Among students, 66.9 percent of women and 56.8 percent of men disagree with the claim that American business is "honest and ethical"; among graduates, 69.6 percent of women and 60.1 percent of men with MBAs take that position.

Nearly three-quarters of MBA graduates (74.9 percent) do not agree that businesses "care about employees," while 69.7 percent believe that businesses pay top executives too much money. The majority, 55.5 percent, do not agree that businesses "do good things for their communities." In these cases, men's and women's views are similar. Meanwhile, only 33 percent of men and 26.1 percent of women say they have definitively favorable views of large companies.

"On the one hand, it's troubling that most MBAs are concerned about the ethical stature of the corporate world," says S. Diane Graham, C200 Chair and Chairman of STRATCO Inc. "But, perhaps early-career business people and MBA candidates will channel their awareness and concerns in positive ways—to improve the ethical stance and priorities of businesses. Much of our research shows that women want to have a positive impact on society through their work. Helping to improve corporate citizenship is a key way for current and future women business leaders to do that."

■ Women still face serious challenges in the workplace, which is primarily controlled by men.

Of recent MBA graduates, 90.5

percent of women and 68.5 percent of men say that women face particular business challenges. The key difficulty, according to 70.8 percent of women, is the lack of flexibility, leading to problems with achieving a work/life balance. In addition, 48 percent of women with MBAs say finding mentors is a specific problem, while 46.2 percent worry about gaining access to business networks. In fact, most respondents with MBAs—92.5 percent of women and 81.8 percent of men—perceive that businesses are run primarily by men.

"One of C200's core goals is to develop ways to help improve the pipeline of future women business leaders," says C200 Board Director Agnieszka Winkler, Founder of The Winkler Group. Survey results lead her to believe that "even now, we still need to do more to both prepare women for the corporate world and prepare the corporate world for women."

■ Women are more confident about job security than men are, but women are less excited about work.

According to the survey, 57.9 percent of women MBAs say they have job security, while 49 percent of men feel that way. Most of these women find their work agreeable: 75.2 percent feel they have the ability to live according to their own values; 59.9 percent feel challenged by their

work; 57.6 percent feel well-paid; and 56.3 percent feel satisfied.

Nonetheless, 41.4 percent of the women say they are not excited about their work, while 67.2 percent of the men with MBAs say they are. Perhaps this is because 63.9 percent of women MBAs do not believe their work contributes to society in a valuable way, compared to 55.8 percent of men MBAs who feel that way. Of those with MBAs, 56.8 percent of women are likely to be dissatisfied with their job's capacity to "make the world a better place," compared to 44.5 percent of men.

These survey figures are disturbing, says Anna K. Lloyd, executive director and president of C200. "If women MBAs aren't linking their work to societal value, then fewer stellar women will be drawn to business careers; and those who are may not put their full energy and spirit into their work," she says. She believes further research is necessary to determine what is causing the gap between men's and women's satisfaction with work—whether it's related to a discrepancy between the kinds of jobs men and women get, whether it holds true for entrepreneurial women as well as corporate women, and whether it's a general feeling among MBA women that springs from other root causes.

Additional segments of the survey investigate how men and women rate themselves at executing specific business tasks, such as handling money and meeting deadlines, and whether they expect to be earning enough money to support a family or simply to provide for themselves. For additional information about the C200 survey, contact Elizabeth Koons at Sommerfield Communications at elizabeth@sommerfield.com.

■ Honoring Entrepreneurs

Washington State University in Pullman is planning to open a new interactive “Entrepreneurship and Innovation Hall of Fame” to showcase cutting-edge innovations and breakthrough products from around the world. “We believe this will be the first center in the world to highlight the accomplishments of dynamic and creative people,” says Len Jessup, dean of WSU’s College of Business and Economics. “Visitors to the Hall of Fame will actually experience the ideas, creativity, and vision of the pioneers of entrepreneurship and innovation. The digital Hall of Fame will bring all of those to life.”

The Hall of Fame reflects WSU’s Entrepreneurship and Innovation Initiative, designed to infuse entrepreneurial attitudes into 245 fields of study across the university. The cornerstone of the Entrepreneurship and Innovation Initiative is a dedicated state-of-the-art learning facility that will house the new Grant Institute for Entrepreneurship and Innovation. At the building’s entrance, the Hall of Fame will lead visitors and students into state-of-

the-art learning spaces in the Collaborative Learning Center. There, traditional classrooms will be replaced with suites that can be reconfigured and resized to foster brainstorming, collaboration, analyses, and high-tech presentations.

■ Eller Competition Emphasizes Ethics

A student team from The University of Washington won the inaugural Western Region Ethics Case Competition held last fall at the University of Arizona’s Eller College of Management in Tucson. The competition exposed students from nine Western universities to an ethical dilemma they could face in their careers. Student teams collaboratively analyzed data and responded to questions posed by a panel of judges from the corporate world. The top team won \$1,000; the second-place team, from the University of Arizona, received \$500.

In addition to the winning schools, other participants were Arizona State University, Colorado State University, Oregon State University, San Diego State University, Seattle University, University of Nevada-Las Vegas,

and University of Utah.

“This is an educational opportunity that promises to make a significant impact,” says Pam Perry, who is associate dean of undergraduate programs at the Eller College. “The experience will surely challenge the students’ moral reasoning while providing a wonderful opportunity to network with peers. In the end, we are raising awareness of the importance of ethical responsibility in the minds of our students; and that is good business.”

This case competition is part of the E-tegrity initiative, which seeks to make integrity an essential part of the Eller culture. More information about E-tegrity and the competition can be found on the Web at ugrad.eller.arizona.edu/etegrity.

■ Traits of a Leader

Individual character is the single most important attribute in defining a leader, according to John J. Brennan, chairman and CEO of The Vanguard Group. “No other asset that a potential leader possesses could ever override an ounce of concern about his character,” Brennan said, speaking at a leadership conference sponsored by the Center for Responsible Leadership and Governance at Villanova University in Pennsylvania.

A second keynote speaker at the conference, retired general Anthony R. Zinni of the United States Marine Corps, presented the audience with what he called “leadership codes.” According to Zinni, the key code is: “Know what you want your legacy to be and deliver.”

While many define leadership in terms of characteristics and traits—such as strength, confidence, trustworthiness, dependability, and intelli-



■ Williams Steps Down at Arkansas

Doyle Z. Williams, dean of the University of Arkansas’s Sam M. Walton College of Business in Fayetteville, has announced his intention to return to the faculty next summer after 12 years as dean. Williams is also chair of the board of directors for AACSB International, a position he will hold until July.

Under Williams’ leadership, the Walton College has experienced a period of exceptional growth and development. In 1998, the school received a \$50 million gift from the Walton Family Charitable Support Foundation, leading to the school’s name change in 2001. During his tenure, the school also substantially revised its undergraduate curriculum to integrate business into a general baccalaureate program.

"A lot of the technology we take for granted today, like the Internet, semiconductors, and jet airplanes, were developed in the 1950s as part of defense, principally with Pentagon money.

And nobody was thinking of the commercial applications until they became obvious.

That's what's happening now."

—Paul Bracken, Yale School of Management

gence—Zinni and Brennan have a different perspective. In their presentations, they noted that responsible leaders cannot simply rely on a set of personality traits, but must hold themselves to a higher set of standards. They felt that discussing the attributes of leadership was particularly critical last fall as U.S. citizens voted in a presidential election.

Commercializing Counterterrorism

As business becomes increasingly complex, business schools must teach students how to rapidly map connections among technology, social trends, and political and economic forces. At the Yale School of Management in New Haven, Connecticut, professor Paul Bracken has designed a required core course called "The Strategic Environment of Management," in which students are taught scenario thinking as a way to make these connections and seize new business opportunities.

Among other issues, the course posits that a higher awareness of terrorism is causing major shifts in the American market. First, Bracken argues, the general public has grown far more tolerant of surveillance and other technology in public spaces and corporate workplaces. Second, he notes that federal and private equity money being poured into new technology is kick-starting industries built around areas such as surveillance and germ warfare.

Bracken points out that today's surveillance technology includes cameras installed in urban areas, like Chicago, to monitor the streets for crimes and terrorist attacks. "I predict that in a few years, Chicago will use this system—developed and deployed with federal money—to



start charging congestion taxes on cars that come into downtown, which the city of London already does," says Bracken. "The step from the counterterrorism camera to the tax camera is quite small. The spinoff commercial implications of these technologies are gigantic."

Bracken also believes that using technology to track people and objects is also right on the horizon. Even now, employees at large companies routinely wear their badges and submit to ID verification at various checkpoints. "It's a *small* step to insert a chip in that badge so the company can actually monitor where an employee is in the building," Bracken says. "It's already happened in many hospitals, where they tag patients with chips. They're even tagging their records to keep them from getting lost."

Therefore, Bracken thinks ID chips developed to track visitors through sensitive government installations may ultimately become the cornerstone for health-care reform by improving efficiency in hospitals. "So much money is wasted in hospitals because people are queued up for X-rays but the technicians can't find the record of what they're supposed to X-ray," says Bracken. "If you run a hospital and you can get ten or 20 percent more throughput in your imaging business, that's a huge, posi-

tive effect on the bottom line."

The fear of bioterrorism will help spawn another whole new industry, Bracken believes, as the government funds research of self-cleaning products created by mixing chemicals with steel and plastic.

While they're being developed to fight against germ warfare, self-cleaning materials might ultimately be used in public spaces like stadiums, subways, and fast-food restaurants.

"I think the commercial implications will dwarf the defense ones," Bracken says. "For example, lockers in schools and toys in day care centers could be built with anti-bacterial surfaces to cut down on colds and earaches among children." He believes that the next "big thing" is clean products and buildings.

He adds, "A lot of the technology we take for granted today, like the Internet, semiconductors, and jet airplanes, were developed in the 1950s as part of defense, principally with Pentagon money. And nobody was thinking of the commercial applications until they became obvious. That's what's happening now."

How does Bracken present these new technologies to his students? "I teach them to see the connections between technology and social trends," says Bracken. "Management deals with complexity. How do you rationally allocate resources to airport protection versus port protection? If you're Lockheed Martin, which technologies do you invest in?" As the world continues to remain dangerous, he says answering such questions becomes even more critical.

SHORT TAKES

GRANTS AND DONATIONS

■ The Martin J. Whitman School of Management at **Syracuse University** in New York has received a donation from retired business executive and alum Walter Kiebach to endow the Walter and Olivia Kiebach Chair in International Business. The inaugural chairholder will be professor Peter E. Koveos, who is chair of the Department of Finance, senior director for International Programs, director of the Diamond Institute for International Investment and Taxation, and director of the Olivia and Walter Kiebach Center for International Business Studies.

■ **Babson College** of Wellesley, Massachusetts, and the **Franklin W. Olin College of Engineering** in Needham, Massachusetts, have received a \$600,000, three-year grant from the National Science Foundation to develop programs to teach engineering faculty how to instill an entrepreneurial mindset into the nation's engineering schools. The grant program's first initiative, The Symposium for Engineering Entrepreneurship Educators (SE3), will teach teams of engineering educators and entrepreneurs about the process and content of teaching entrepreneurial venture creation and management. Also involved in the SE3 symposium will be Sloan Consortium for Online Learning, Roundtable on Entrepreneurship Education for Scientists and Engineers Stanford Technology Venture Partners, Geo-Centers Inc., Jackson State University, Hampton University, and Salish Kootenai University.



■ A total of \$53.3 million has been donated to **Baruch College** in New York City by alumni William Newman, Larry N. Field, Lawrence Zicklin, Marvin Antonowsky, William F. Aldinger, and one anonymous donor. The new donations lift Baruch's capital campaign past its previously stated goal of \$150 million. The gifts will be dedicated respectively to Baruch's Vertical Campus facility; the restoration of its original classroom building; a chair in entrepreneurship; the college's performing arts center; an endowment for the college's Center for Financial Integrity, now known as the Robert Zicklin Center for Corporate Integrity; and a chair in banking and finance.

■ The College of Business at **Utah State University** in Logan recently received funding for its first fully endowed chair. The George and Dolores Eccles Foundation funded the chair to honor Eccles, the man who was the key moving force behind First Security Corporation, the oldest multistate bank holding company in the United States.

■ The Stern School of Business at **New York University** in New York City has received a \$1 million gift from the Toyota Motor Corporation to establish the Toyota Professorship of Operations Management and Information Systems. **Sridhar Seshadri**, associate professor of operations management, has been named the first Toyota professor. Seshadri will focus his research in the areas of supply chain management and business process improvement, while continuing to teach in the NYU Stern undergraduate and graduate business pro-



grams. His endowed professorship will run from January 1, 2005, through August, 31, 2007.

■ **New Mexico State University's** College of Business Administration and Economics at New Mexico State University in Las Cruces will establish a new endowed chair thanks to a gift by the dean and his wife. An initial gift of \$500,000 was given by Garrey E. Carruthers, dean of the business college and vice provost for economic development, and his wife, Katherine, to establish the Garrey E. and Katherine T. Carruthers Chair in Economic Development. A \$1 million contribution is expected from the state, making the endowment worth \$1.5 million. Although the chair will be in the business college, it will be associated with NMSU's Arrowhead Center Inc., which provides support and guidance to innovators who want to turn their ideas into profit. The center, which will partner with New Mexico laboratories and other institutions of higher learning, will help create jobs, enhance student education, recruit and retain faculty, and connect ideas with capital.

NEW PROGRAMS

■ Paris-based business school **EDC** has gathered a coalition of food and wine experts to launch the Institut Supérieur de Marketing du Goût, a training program for those entering the food company sector. Starting in January, the nine-month program will deliver a food and wine MBA to post-graduate students or individuals with a solid pro-



Supérieur de Marketing du Goût, a training program for those entering the food company

fessional background in the field. Classes will cover management, communication, production, and sales for the industry.

■ **Nissan Europe** has selected **IESE Business School** in Barcelona, Spain, to carry out a new leadership program designed for its top managers throughout Europe. About 100 Nissan managers will participate in the program. The Nissan leadership program combines leadership concepts with real-world application to business problems, with a focus on innovation and risk-taking.



■ **Webster University's** School of Business and Technology in St. Louis, Missouri, is rolling out an MBA Certificate in Global Commerce, designed to equip students for operating across political, cultural, and geographical boundaries. The 18-hour certificate consists of nine online modules of one credit-hour each, as well as three courses of three credit-hours. Students may choose modules from categories addressing various worldviews, cross-cultural perspectives, and international business mechanics. More courses will be added in the spring. The program was funded through a \$400,000 grant from the U.S. Department of Education.



■ **Audencia Nantes School of Management** in France has launched a corporate MBA for top French-based personnel of the Stryker Corporation, one of

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SHORT TAKES

the world's leaders in the medical device industry. The participants will spend three days a month in Nantes over 12 months, taking 200 hours of lectures, participating in business simulation games, and committing themselves to 400 hours of individual work. Program-long projects will be applied directly to Stryker initiatives. At the end of the course, participants will present their project findings to the CEO of Stryker France.

■ The Kenan-Flagler Business School, **University of North Carolina at Chapel Hill**, is partnering with the **Chinese University of Hong Kong (CUHK)**



and **Copenhagen Business School (CBS)** to launch an international program in undergraduate business. The program—Global Learning Opportunities in Business Education (GLOBE)—will allow students to study together at all three school campuses, as well as collaborate in virtual teams. Students will make visits to corporations headquartered in Brussels, Berlin, Shanghai, Tokyo, Washington, D.C., and Research Triangle Park, North Carolina. The first GLOBE students will be selected for the three-year programs at CUHK and CBS in fall 2005 and into UNC's two-year undergraduate program in fall 2006. Roots of the GLOBE program can be traced to the alliance of five business schools, Kenan-Flagler and CUHK among them, in the OneMBA program for executives.

■ The Spratt Professional Programs Division at **Carleton University** in Ottawa, Canada, is launching the Professional Certificate in Public Sector and Non-Profit Marketing Program this month. The program will provide in-depth skills to veteran marketing and communications professionals in the government and nonprofit sectors. During a series of modules over a five-month period, participants will learn how to measure the effectiveness of new initiatives in meeting organizational objectives and how to demonstrate good value for public dollars in the face of diminishing resources.

■ The **University of Maryland's** Robert H. Smith School of Business has announced that, beginning in November, it plans to expand its EMBA program in China to include Shanghai. The school also has reached an agreement to deliver a custom MBA program for Otis Elevator China, one of the fastest growing multinational corporations in the country.

■ **Melvin T. Stith** has been named dean of the Martin J. Whitman School of Management at Syracuse University in New York. Stith has served as dean of the College of Business at Florida State University since 1991. He begins his new appointment in January, the same month that the Whitman School moves into its new 160,000-square-foot building.

NEW APPOINTMENTS

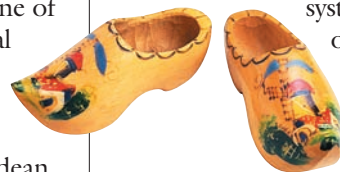
■ **Mary Lambkin** has been named the new dean of commerce at University College Dublin in Ireland. She will have responsibility for the postgraduate Smurfit School of Business, as



well as the high-tech undergraduate Quinn School of Business. Lambkin is currently a member of the Governing Authority and Professor of Marketing at UCD.

■ The Owen Graduate School of Management at Vanderbilt University, Nashville, Tennessee, has reorganized its management team. **Tami Fassinger** returns to the university as associate dean for executive programs; **Gary Scudder** has been named associate dean for the MBA program; **Melinda Allen** has been named assistant dean of admissions and career management; and **Yvonne Martin Kidd** has been named executive director of marketing and communications.

■ **Richard J. Welke** has been appointed as Cor Wit professor 2005 at the Faculty of Technology, Policy and Management at the Delft University of Technology in The Netherlands. Welke is professor of computer information



systems and director of the Center for Process Innovation at the J. Mack Robinson College of

Business at Georgia State University in Atlanta. The Cor Wit chair is awarded annually to researchers in the field of telecommunications and informatics who focus on research questions at the interface of technology and society.

■ **Jeffrey K. Pinto**, professor of management, has been named to the Andrew Morrow and Elizabeth Lee Black Chair in Management Technology in the Black School of Business at the Pennsylvania State University at Erie. In his new appointment, he will concentrate on the management of tech-

Fox is on the *move*



Top 20 in the U.S.
Executive MBA Programs
Financial Times, 2004
4th Consecutive Ranking

Top 20 in the U.S.
Undergraduate and Graduate
International Business Programs
U.S. News & World Report, 2004
2nd Consecutive Year

Top 20 in the U.S.
America's Top Entrepreneurial Colleges
Forbes.com & Princeton Review, 2004

Top 75 in the U.S.
MBA Programs
U.S. News and World Report, 2004
Forbes, 2004
4th Consecutive Year

Top 5 in the U.S.
Most Wired Campus
Forbes.com & Princeton Review, 2004

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nological and organizational innovation and the change needed to achieve global competitiveness. The chair was one of four created in 2003 with part of a \$20 million endowment gift from the Black family.

■ **Henley Management College** has announced the appointment of a new principal, **Chris Bones**, who takes his position January 1. After 22 years working for Shell, Diageo, and Cadbury Schweppes, Bones has significant experience in international business, executive education and development, change, and HR strategy.

■ **Rosemaria Martinelli** has been appointed associate dean for student recruitment and admissions at the University of Chicago Graduate School of Business effective May 1. Martinelli is currently director of MBA admissions and financial aid at the Wharton School of the University of Pennsylvania. She began consulting on admissions strategy at Chicago GSB in November.

■ **Irene M. Duhaime** has been named associate dean for Georgia State University's J. Mack Robinson College of Business in Atlanta. Duhaime has served the College as Zwerner Chair of Entrepreneurship and Family Business, director of the W.T. Beebe Institute of Personnel and Employment, and professor and chair of managerial sciences.

■ The Hong Kong Baptist University has appointed professor **Simon S.M. Ho** as its new dean of the School of Business. Prior to joining the school, Ho served as Director of the School of Accountancy at The Chinese University of Hong Kong. Under his leadership, CUHK became the first



accounting school outside North America to receive AACSB accreditation. Ho is vice president of the International Association for Accounting Education and Research.

■ The Fisher College of Business at The Ohio State University in Columbus has appointed **Anne Lueneburger** director of graduate programs, Eric Chambers as associate director of MBA programs, and **Terina Matthews** as associate director of diversity recruiting/financial aid/event management.

■ Several new appointments have been made at Colorado State University's College of Business in Fort Collins. Professors **Susan Athey**, **Paul Mallette**, and **John Hoxmeier** have been named associate deans. Athey will oversee undergraduate programs; Mallette will be responsible for research and administration; and Hoxmeier will handle graduate programs. In addition, **Stanley Slater**, who serves as professor of management and marketing, has been named interim chair of the management department.

STUDENT COMPETITIONS

■ Two MBA students from the University of Toronto's Rotman School of Management have won first prize in

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an international competition that challenged MBA students to examine corporate entrepreneurship. The competition, the *ESADE MBA Business Review*, invites business students worldwide to write a paper on a specific issue, which this year was “entrepreneurship and innovation.” The top ten entries were published by ESADE last fall, and the winning team from Rotman presented its paper at an event hosted by ESADE in Barcelona, Spain.

HONORS AND AWARDS

■ **David Parker**, chair of business economics and strategy at Cranfield



School of Management in England, has been appointed to write the Official History of Privatisation in the UK. The appointment was announced by the Prime Minister in the House of

Commons. The Prime Minister commissions Official Histories to record major events and policy programs that have had a significant effect on UK domestic and foreign policy.

■ Two professors at Cornell University’s Johnson Graduate School of Management in Ithaca, New York, have been named Clifford H. Whitcomb Faculty Fellows. **Warren B. Bailey** is an associate professor of finance, and **Yaniv Grinstein** is an assistant professor of finance.

■ Three entrepreneurship centers have been honored with the 2004 NASDAQ Center of Entrepreneurial Excellence Award given by the National Consortium of Entrepreneurship Cen-

ters. The centers were **Stanford University’s** Stanford Technology Ventures Program, the **University of Portland’s** Center for Entrepreneurship, and The Falcone Center for Entrepreneurship in the Whitman School of Management at **Syracuse University**.

■ **Bert W. M. Twaalfhoven** was recently awarded the Beta Gamma Sigma Medallion for Entrepreneurship, the society’s highest honor. Twaalfhoven, an alum of the College of Business at Fordham University in New York, received the medallion during an event at Fordham. The entrepreneur and venture capitalist has launched more than 50 firms and acquired more than ten others.

■ **Peter C. Browning** has been named one of eight Outstanding Directors for 2004 by The Institute of Outstanding Directors. He is dean of the McColl Graduate School of Business at Queens University of Charlotte and retired president of Sonoco Products Co. He is being recognized for his skill in handling corporate change as he helped guide the boards of Lowe’s Companies and Nucor Corp. through difficult successions. The institute will present the award in March in New York at a governance conference produced in conjunction with the Columbia Business School.

OTHER NEWS

■ **Columbia Business School** and **Net Impact** drew approximately 1,200 students, professionals, and sponsors to the 12th Annual Net Impact Conference, “Business Leaders Building a Better World,” held last fall at Columbia Business School in New York City. Keynote speakers included Orin

Smith, CEO of Starbucks Coffee Company; Julius Walls Jr., CEO of Greyston Bakery; Gary Erickson, CEO of Clif Bar; Jeffrey Hollender, CEO of Seventh Generation and author of *What Matters Most*; and Thomas M. Chappell, CEO and Co-Founder of Tom’s of Maine and President of The Saltwater Institute. Topics included nonprofit management, community development, social funding and financing, corporate social responsibility, sustainable solutions, globalization and emerging markets, and social entrepreneurship.

■ The School of Business and Public Administration at **California State University** in Bakersfield kicked off its Executive Briefing Series with a visit from Steven Lyons, president of Ford Motor Company Division and vice president of Ford Motor Corporation. The Executive Briefing series is designed to bring high-level executives from major corporations, government officials, and nonprofit organizations to campus



once a quarter to discuss cutting-edge issues of management with graduate students, faculty, and advisory board stakeholders.

■ The Robert H. Smith School of Business at the **University of Maryland** in College Park has partnered with human resources consulting firm DBM to provide the school’s MBA candidates with job search coaching and support. DBM’s online tools and coaching programs will help part-time, full-time, and executive MBAs make career transitions and develop necessary skills. **Z**

21st-Century Engineer

Forget about the information superhighway. Instead, picture the Internet as a global railroad

by **Sharon Shinn**

photos by Robert Houser

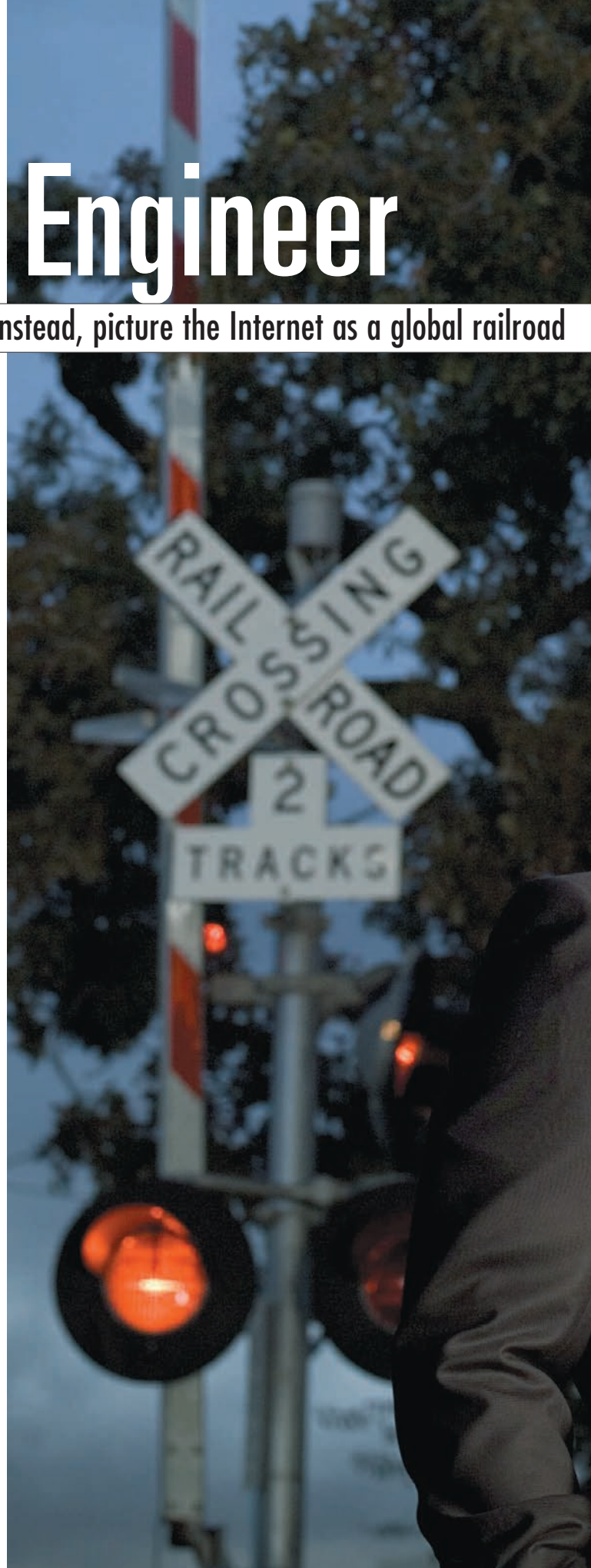
Stratten Sclavos is constructing the equivalent of the modern-day railroad. He's laying down virtual tracks through Internet territory as he considers how to carry global commerce through the rest of the 21st century. Maybe even beyond. Sclavos thinks in terms of centuries and lasting legacies.

The chairman and CEO of VeriSign Inc. runs a business not easily defined. The Mountain View, California, company offers "digital trust services"—security and authentication services for online buying and communication, as well as telecom services and domain name services. Recent acquisitions of Signio, which handles payments for online merchants, and Network Solutions, which assigns and tracks Web addresses, have made VeriSign a one-stop supplier of all Internet-based needs for corporations interested in online commerce.

That's all according to plan. Sclavos has said he wants VeriSign to be the Internet's first utility—a pervasive, essential, invisible part of the infrastructure that enables business to get done. He's focused on making Internet transactions as secure and trouble-free as possible, and he's constantly looking toward the future to help him determine what his choices should be now. Even in a field as volatile as technology, such focus has made Sclavos a recognized leader: He received the 2001 Morgan Stanley Leadership Award for Global Commerce and has been named to the *Forbes* list of Top 50 CEOs.

Yet his definition of leadership is one that even an undergraduate business student can understand. "In many ways, it comes down to charting a course—having the ability to articulate for your employees where you're headed and how you're going to get there," he says. "Even more important is choosing people to work with who have that same level of passion, commitment, fear, and competitiveness to drive toward those same goals. A lot of people talk about visionary leaders. I believe that you have to do the heavy lifting every day, make sure you have your best people on your biggest opportunities, and make sure you don't get complacent about where you are at any given point in time."

Sclavos knows where he is right now. Where he takes VeriSign in the coming decades may shape the way the whole world interacts with the Internet.



A portrait of Stratton Sclavos, a middle-aged man with short, light-colored hair, wearing a dark suit jacket, a white shirt, and a red and white striped tie. He is looking directly at the camera with a neutral expression. The background is dark and out of focus, suggesting an outdoor setting with trees.

covered with fast-moving trains. The man in the lead locomotive is VeriSign's **Stratton Sclavos**.

I've been trying unsuccessfully to coin a simple explanation of VeriSign. Do you have your own shorthand description of the company's services?

We've been trying to come up with one for nine years! The simplest way to describe us is that we provide intelligent infrastructure services for the Internet and the telecom networks. In essence, we sit above the pipes of the Internet and the traditional voice networks, and we provide services that make those networks more reliable, more secure, and more scalable.

On the Internet side, our domain name services help people find Web sites as well as send e-mail. We handle about 14 billion interactions a day. On the telecom side, we help mobile professionals roam on cellular networks. We handle about 50 percent of all the roaming traffic in North America.

Our services are designed to help people in business find each other, connect, securely communicate, and transact. We think those four things—find, connect, secure, transact—are the equivalent of the dial tone in the phone networks. This will be the infrastructure that services ride on for the digital wave.

Exactly what do you mean when you call VeriSign part of the Internet infrastructure?

Look at the railroads of the mid-1800s. Look at electric power grids and air transportation industries of the 1900s. Today, look at telecom and the Internet. Each time a major economic shift happens, a new intelligent infrastructure has to be put in place. We believe VeriSign is the company to build that intelligent infrastructure for this generation's economic shift.

The wonderful thing about infrastructure businesses is that, once you build them, you really are enabling hundreds or thousands of opportunities to succeed. It may be Internet commerce or it may be Internet telephony, but it's all riding on the same infrastructure, so our investments can be leveraged across them. We don't have to make a live-or-die bet. We sleep better at night knowing that infrastructure is adaptable to many other opportunities.

At the same time, we have to have some courage, because the infrastructure has to be built before the market exists. It really is a "build it and see if they come" phenomenon. The market can't get started until the infrastructure is there, but once it does get started, then the infrastructure better be very scalable and very reliable.

You started at VeriSign in 1995 as one of its first employees. What drew you to the company?

I have an engineering degree, so I'd always been focused on technology; but I really felt that VeriSign would give me a chance to hand-pick a team and build a company that would leave a legacy. Whether that legacy was going to be security or some other version of technology was not as important to me as getting an opportunity to build something from scratch and surround myself with people who had those same goals.

Our first business model, which was written before I got here, was to sell security services to Apple/Mac users and to Lotus Notes users. The Internet came along just about the same time I did, and we had an opportunity to provide services for Netscape's original products and, three months later, for Microsoft.

Over the last nine years, we have learned a lot about how to build an organization. You must understand your core competencies, but you also must adapt to what your customers are telling you are the real opportunities to pursue. Had we chosen the Apple/Mac and Lotus Notes market, we would not have survived as a company.

You reached the CEO's office without having a degree from business school. What do you think you learned on the job that you never could have learned in school?

I think there are two sides to that coin. I had taken my GMAT and intended to go to business school after working for a few years. But I was in Silicon Valley at a time when the best education I could get about high-growth businesses was occurring right in front of me. In that particular era, I would say I probably was better served not going to business school and just living in what was an incredibly dynamic environment. This was a time when the first microprocessors and the first operating systems for Microsoft and Apple came onto the market. It was the most fascinating time in technology to live through.

On the other hand, when I watch business school graduates who work for us, I see that they have a set of skills that I wish I *had* learned earlier. They understand modeling and financial and strategic analysis. Would those tools have helped me in the early years of Silicon Valley? Absolutely. One thing you don't learn in a hypergrowth mode is disciplined thought and analysis.

I think you need a blend of both kinds of learning—the discipline you can get from a business school curriculum as well as on-the-job training that teaches you that business needs to be adaptive every day.

At a time when a lot of other Internet companies were failing so spectacularly, VeriSign was thriving. If students were looking at VeriSign as part of a case study

about successful Internet companies from the 1990s, what would they discover?

We were the last of the old-world venture funding companies instead of the first of the new Internet companies. For us it was about building a company in a bootstrap way—spending as a byproduct of growth, not in anticipation of it, and laying a solid foundation for the company no matter what the markets brought in terms of opportunity and change. I think this notion of building something that will leave a legacy, and doing it in a methodical way, gives a company a strong foundation from day one.

The other thing was that we were willing to adapt our model based on what our customers told us. One of the sayings I'm fond of is, "Our vision is good but our hearing is better." So, very early on, we listened to what Netscape and Microsoft were telling us about the Internet. We listened to what the government and large corporations were telling us about their security needs. Relatively early on, we understood that running intelligent infrastructures would enable electronic commerce and communication; and if we did it right, we'd be a beneficiary. Listening to customers and following the winds of the market gave us a strong ability to adapt quickly to what we saw.

So many technology company founders and business school graduates are taught that they must stick to the strategy and stay focused. That's a very, very important lesson. The corollary is, you've got to listen to your customers if your strategy is wrong. I think you need to keep your options open in terms of business direction and strategy, but you shouldn't stray from your core competencies.

What should business students learn about the reasons technology companies failed during the Internet bubble—and the reasons some of them are so successful now?

I think that the key lesson is that you need to be No. 1 in your market. During the bubble, there was the notion that a rising tide raises all boats. We could have a thousand online booksellers, and they would all thrive. In reality, the No. 1 guy makes at least half the profits of the whole industry. No. 2 may make another 20 to 30 percent, and everybody else fights for the scraps. So the notion of being a me-too player, or that being No. 2 or No. 3 is OK, is really a fallacy. And I think that is just as true in the online world as it was in the offline world.

All the things we used to hear about—the new business models and disruption of the online economy and disintermediation, blah, blah, blah—I don't think that all proved out. I think the reality is, those who got there first with the best

One of the sayings I'm fond of is, "Our vision is good but our hearing is better."



value proposition and proved they could scale are now in a position to drive a disproportionate share of returns to their shareholders and their customers.

VeriSign is successful on a number of fronts, but some of your primary offerings are secure payment options that allow people to buy safely over the Internet. Until such options existed, people were reluctant to make purchases online. What had to happen technologically and psychologically to enable Internet commerce?

Two things had to happen. First, the experience of buying something over the Internet had to be better than the corresponding experience in the physical world. Whether they were on Amazon.com or eBay, customers had to feel like it was a better use of their time and money to buy there. Online buying could only succeed if people could be convinced that the risk was worth the reward. The risk of doing business online with an entity they could not see had to be outweighed by the reward of those benefits.

In the early days, our security technology created an umbrella under which many businesses could promise customers that online buying was not only a better service, but it was as safe as the physical world. If you do a survey of people who still don't buy online, the majority of them will tell you it's because they're afraid of putting in their credit card number. That being said, online commerce through our payment gateway reached \$10 billion for the first time last year.

Another crucial component of your business is providing online security. What sorts of threats do you see to the digital and telecommunications infrastructure, and how can people protect against these threats?

Let me start small and go big. VeriSign networks and data centers probably get attacked more than 500 times a day. Part of that is because of who we are, and part of that is because everything we do is Internet-based. We're just very available for those types of threats. We also manage and monitor the net-

work perimeters for companies like Merrill Lynch and U.S. Bank. On their networks, we are now seeing twice the number of security events on a monthly basis as we did a year ago.

What's really happening? First of all, more and more of every business's assets are being exposed to the network every day. The more we move to a digital infrastructure, the more companies are going to have to open up their corporate assets. So there are richer and bigger targets.

Second, we've moved on from the early stage of security threats that were really acts of mischief perpetrated by unorganized, disassociated groups of teenagers. Now, we're seeing much more organized forms of attack, like phishing and identity theft. With phishing, we have very sophisticated and clever people targeting the e-mail addresses of customers of the largest banks in the world and trying to fool them into giving social security numbers and credit card numbers on Web sites that you and I couldn't tell weren't authentic. The sophistication of the attackers has grown dramatically in the last few years, commensurate with the amount of money that's now being transacted in the online world.

I think we have to step back and say, "Well, isn't it natural that as the economy moves to a digital infrastructure, so do the criminals?" They're always going to be chasing the money. The economy is moving, and so are the threats.

For about three years, you've been a member of the White House National Security Telecommunications Advisory Committee—NSTAC—which deals with national security and emergency preparedness. How has your job there changed recently?

It's really only been in the last 12 to 18 months that we've turned the discussion from copper cables over bridges and under tunnels to network attacks and the potential for serious disruption of our financial, power, and utility systems. While the physical security protections were the most important things to focus on after 9/11, we are now moving into a world where we have to pay equal if not more attention to

I think, as security technology providers, we can create great products and services

the digital threat. What's likely to emerge are blended attacks that will have physical and digital implications.

The real goal of NSTAC is to make sure that the private-sector companies that operate much of the critical infrastructure are both prepared for national security events *and* capable of supporting the first-response initiatives for federal, state, and local governments. We have to make sure we're as resilient against attack as we can be by sharing information—and then, when there is an attack, make sure we can provide a reliable backbone for communications so that emergency responders can do their work.

Extending the issue of security to the university campus, you might know that many business schools now require laptops and offer wireless connectivity. What would be the likeliest threats to such large, multiuser educational wireless networks, and how can schools protect their students and themselves?

I think that in general we are a society, particularly in the U.S., that will always choose ease of use and convenience over better security. That's true in what we do in an airport—it's true when we give our credit card to a waiter—and it's true when we take our laptops and hook up to wireless networks. There's an obligation in the security industry not to force end users to choose security over convenience. That said, we have to begin building services and technologies that are as easy to use or as invisible to the user as they can be. We need to have ubiquitous wireless networks *with* good security.

So what could happen on a campus? The same thing that happens at an enterprise. A user goes home, hooks up to his broadband supplier, is Web surfing on personal time, and unknowingly gets a virus or a worm downloaded onto his computer. He comes back in tomorrow and plugs into the corporate or campus network, then all of a sudden that virus is everywhere. In the new genre of security threats, much of what we're seeing is that the penetration occurs from a friendly device that comes back into the network to contaminate it. That's very different from two or three years ago, when all the threats were coming in the front door.

The new state-of-the-art in security is what's called "vulnerability assessment in management." The idea is, instead of waiting for an attack, why don't we proactively look at all the machines in our network, highlight what the vulnerabilities *could* be, and then begin isolating or patching them? It's somewhat like inoculation against some disease. Vulnerability management offers early warning systems, as opposed to threat detection and response.

I do think there is a longer term issue and opportunity

here. My generation didn't grow up with the Internet. We kind of had it thrust upon us midway through our maturation. My children are growing up with both wireless services and the Internet as a part of life, and they're not as sensitive about security on these networks as they need to be. The next generation is the one that I hope will grow up with an education system that tries to establish a culture of security. Their attitude will be, "It's good to get on the network. It's better to get on the network safely."

I think, as security technology providers, we can create great products and services that will make people secure, but they only work if people use them. The next generation has to grow up using them and taking them for granted.

I want to turn the conversation toward the future. You have a 100-year vision for VeriSign. Can you describe it?

We don't call it the VeriSign Vision. We call it the VeriSign Journey. A hundred years from now, how would we want the history books to describe what we contributed to technology and society in general? We want to build the infrastructures that accelerate the next wave of economic activity—the way the railroads did, the way the electric power company and the air transportation industry did. And that's a lofty goal that our employee base has rallied around.

Backing it up from that hundred-year-out journey, we ask, "What does that mean we have to be 25 years from now? Five years from now? *And* how do we stay on course by achieving certain milestones this year?" If we want to leave a legacy, then we want to be the most influential company of this century—the way that GE or IBM or Microsoft were last century.

We've already got e-mail, e-banking, e-commerce, and wireless data access, and we're heading toward smart appliances. What else is coming?

I have a slide in one of my presentations that shows the proverbial hype curve. It says when a technology is first announced or introduced, the hype is like a rocket ship. But adoption rates are slower than anticipated, so we go into the trough of disillusionment. That lasts for some period of time. And then very quietly, without a lot of fanfare, adoption kicks in.

Much of what you're going to see in the next five to ten years is the adoption of the technology and the infrastructures that were overhyped during the Internet bubble and given up for dead two years ago. Those include using voice-over IP, taking telephony from the traditional networks into IP-backed phones, reducing the costs of technology, and increasing the types of services you can get. Those might be wireless



that will make people secure, but they only work if people use them.

data, games, videos, broadcast TV, ring tones, ringbacks—you name it—five years after they were first touted, these are really starting to take off. Outside of that, we think the notions of RFID tags and electronic product codes really do have the ability to transform the supply chains of the world.

You're talking about radio frequency ID tags, which store information on microchips that can be used to identify both people and products. How do you expect these to radically change commerce?

With RFID, products can be tagged as they pass through the supply chain, out of the manufacturing plant, through the warehouse, to the truck, and eventually onto the shelf. We know where they are. We know whether that product is real or counterfeit. If that product is a pharmaceutical, we know whether it has expired or been recalled. We know if it's been stolen.

When you look at all the inventory that sits in distribution, all of the out-of-stock situations when customers can't find a product on the shelves, all of the theft in the distribution channel and at the point of sale, and add that up for all manufacturers for all industries across all retail distribution centers, you're talking about between \$600 billion to a trillion dollars per year of economic loss. If we can shut down a lot of that leakage, there will be dramatic economic benefits to bread-and-butter industries. That will get translated into lower prices for consumers, better earnings for retailers and packaged good companies, and a reinvestment of some of those savings into new products.

Trust me, RFID will go through its hype curve. Walmart has told its 100 top suppliers they better be on board by January 2005. Everybody's going to be late. In the early years, benefits won't be seen all the way out to the shelf, just in case-and-pallet at the warehouse. So there's going to be some disillusionment in the early days. But I believe this development will be one of the most significant changes our economy will see for several decades.

As for your own future, what would you like to accomplish over the rest of your career, with VeriSign or elsewhere?

I'm absolutely confident this will be the last job I have. I love what we're doing. I think the things we're working on will have an incredible impact on the world over the next five to ten to 20 years. The people we've surrounded ourselves with all have that same kind of energy and passion and commitment to do great things. So I can't think of a place I'd rather be, nor can I think of anybody I'd trade places with in the technology industry.

You know, CEOs often will say that going from zero to \$100 million is the hardest thing. A few years later, if they're still in play, they'll say that going from \$100 million to a billion is the hardest thing. I actually think each new step demands a new level of discipline, a new level of commitment, and a new level of strategic thinking. So as we take VeriSign from \$1 billion to \$2 billion, as we take it from \$2 billion to \$5 billion, I'm excited about the fact that I don't know how to do that job yet. And I'm very confident that I'll learn along the way. I'll take a few missteps here and there, but I'll be able to continue driving forward on this journey.

What advice would you give to today's business school graduates?

I think it is a really interesting time for them. What are the opportunities? Many of them used to go into investment banking and management consulting. My personal opinion is that that's more like being a spectator at the Olympics. All these incredible changes are coming, many of them driven by technology and by telecommunications. They need to get on the field. I'm hopeful that the next generation of business school graduates is really focused on getting into the workforce and helping build something great that leaves a legacy, rather than watching from the sidelines. **Z**



Knights in Cyber Armor

Business schools rely on technical wizardry to keep their systems safe from virtual dragons.



The world of cyberspace is both magical and dangerous, and those who would cross its borders require skill and strong defenders to keep themselves safe. As electronic data transmission and wireless Internet access become coins of the university realm, business schools need to determine how to protect themselves, and their students, from cyber warriors. Schools have always taken cursory protective measures; but these days, school administrators are donning full armor as they step onto the virtual battlefield of the Internet.

This attitude is relatively recent. “Until a couple of years ago, educational institutions viewed security as a philosophical issue as opposed to a technology issue,” says John Arsneault, director of network operations for Harvard Business School’s IT Group in Boston, Massachusetts. “In the past, when we talked about implementing systems security or creating policies for restricting access, discussion would be about how this infringed on freedom and put up barriers to collaboration. That attitude has dramatically changed. Today, the schools that have the funds to do it are implementing systems in a very similar fashion to corporations.”

Openness on a university campus is a thing of the past, agrees Arthur Downing, assistant vice president for information technology, professor and chief librarian at Baruch College in New York City. “We’re moving in a direction where faculty and students are more concerned about anonymity and confidentiality. They don’t want me looking over their shoulders when they’re on their network. But I have to be able to make sure that anybody who’s on our network using our resources at any given time is someone who should be there, and I have to know who they are.”

Security experts are fairly certain that administrators at most schools are covering the basics—installing firewalls, recommending anti-virus software, communicating with users, and creating backups. Even so, many could stand to put up a few more shields and deploy a few more swords in an increasingly volatile cyber environment.

The Outer Defenses: Firewalls

Firewalls prevent unauthorized personnel—even personnel from the rest of the university—from gaining access to the business school network. These software applications keep out users who are not authenticated and note unusual activity that signals some kind of attack. “We have people who monitor the reports of our servers and devices that watch for spikes in activity at certain points in our network,” says Downing. “It can become quite expensive to invest in all this technology.”

by Sharon Shinn

illustration by Neil Brennan

Before setting up a firewall, HBS administrators implemented a product called PacketShaper, which restricts bandwidth available for services such as file sharing. Not only does this instantly cut down on illegal activities such as swapping movies and music, says Arsneault, it allows the system administrator to see which ports are being used for which applications. "When it came time to put in the firewall and close services, we were able to close more than 99 percent of the ports without stopping a single service that was being used on the campus," says Arsneault.

About a year after installing the first firewall, he says, administrators went back in and shut down all incoming traffic outside the data center. "That means people can't go in and host their own Web sites, and can't host peer-to-peer information to their own PCs. It has literally made problems like denial of service attacks and compromised PCs almost disappear."

Inside the Castle: Virus Protection

Anti-virus software can do a superb job of preventing infected information from corrupting the network—but it only works if every user has installed it and is keeping it up-to-date. And "every user" means every professor, staff member, and student who logs on to the network. "You can literally take out the network with one rogue PC," says Arsneault.

It's easiest to control faculty and staff computers. At Harvard, faculty and staff must be authenticated as they log onto a school directory. Service patches and anti-virus updates are automatically pushed through the staff/faculty system by the central IT office. Recently Arsneault changed the virus update refresh date from once a week to once an hour. "When you ask the server if there are any definition updates available, 99 percent of the time the answer is no," he says. "But if a virus definition is released, within 60 minutes the system is updated."

Harvard has also installed LANDesk management software on the faculty and staff systems, which gives the central IT department the capability to do hardware and software inventories while allowing individual users to install software on their own computers. "They still have ownership over their PCs, but we have the ability to know what's on the network now and what software is running," says Arsneault.

Harvard's IT department also has installed two layers of virus control. The one at the e-mail gateway, which guards the system from outside attackers, purges 25,000 infected e-mails a day, says Arsneault. The second one, a McAfee product, monitors internal e-mail—which doesn't have to go through the gateway—to make sure school personnel don't pass on viruses picked up inadvertently.

The Chink in the Armor

You can install every piece of hardware ever invented; you can require absolute synchronization of software. But if you don't get a buy-in from the users, the system will eventually break down. As is so often the case, in the realm of cybersecurity, human beings are the weakest link.

The organization Educause offers schools basic information about technical security solutions on its Web site at www.educause.edu/security/guide, says security task force coordinator Rodney Petersen. But for any school security program to work, the human administrators must first develop a policy that explicitly spells out who is responsible for what and what should happen when something goes wrong. "The three steps are prevention, detection, and response," he says.

In terms of *prevention*, the first important component is risk assessment, which includes identifying and classifying all the data an institution collects. "For instance, a public Web server is public by definition, whereas student records and grades are private," he says. The second component is to identify who the "data steward" is—such as the registrar for student information and the comptroller for financial information. The third component of prevention is setting policies about access: who has it and what kind of controls are in place.

The fourth component is training those with access about how to use and protect the data under their stewardship. "I once worked at a university where a student employee in the registrar's office gave the media information about a student athlete that he had obtained from student records," says Petersen.

In the area of *detection*, Petersen says, administrators can't just secure the mainframes and think they're done; they have to secure the multiple devices that download and manipulate data from that mainframe. For instance, a trusted employee can go to a protected mainframe and download employee information to his laptop. If the laptop is stolen or compromised, all that data is at risk.

"We tend to focus on electronic data and forget that it can exist in a physical form," says Petersen. "One day an administrator showed me a printout of all the employee information, which he'd found in a trash can. What we're talking about is the three stages of data flow: in storage, in transit, and in use. And we forget about data in transit and in use."



A fairly obvious part of detection involves monitoring the systems to determine if someone is trying to break in. A less obvious part is having an administrator do preemptive investigating to find out how much information is publicly available when it shouldn't be. For instance, says Petersen, it's a given that students' Social Security numbers shouldn't be readily accessible. He suggests using a Web search engine to type in "Social Security numbers" and your school's .edu address, and seeing if any faculty Web sites turn up with student grades posted by SSN. They shouldn't—but they might.

Finally, Petersen believes it's critical to have a rapid response team in place so that if a security breach does occur, this group can instantly swing into action. Team members should include tech professionals, legal counsel, public relations representatives, and risk managers. "Have a procedure in place, have the team in place, and test them both periodically," Petersen advises.

Anyone on campus who has any responsibility for data should have a baseline level of knowledge about security, Petersen believes. Over and above that, he should understand his specific duties. "The institution has the role of setting policy, and the user also has responsibility," says Petersen. "The leadership should come from that data trustee and not from the IT department."

In complete agreement is Richard Baskerville, professor and chairman of the computer information systems department of the Robinson College of Business at Georgia State University in Atlanta. Having researched information systems security for about 25 years, he has seen that most organizations focus on technical solutions and overlook management solutions. "People think that with the right encryption, the right access control technology, and the right firewall, you can solve the problems," he says. "We don't have much good work on socially oriented solutions to these problems, like relating employee behavior to security."

What Baskerville really expects to shape the future of information security is not technology, but a new attitude about risk management. "Risk management has always been based

on probability theory," he says. "If there is a low probability of a particular kind of attack, it has never justified a high investment of resources to protect it. However, that theory doesn't really apply to critical infrastructure, because you really have to protect against any possibility of attack, even

if it's a very low probability." When possibility theory is applied to the risk management of critical infrastructure, he says, "it actually changes the kind of control framework and safeguards that you put in place."

Recently, Baskerville has been exploring how information warfare drawn from military models can be used in business applications. Specifically, the military follows a "decision cycle" of observation, orientation, decision, and action; during each stage, it seeks to achieve information superiority over an opponent. "You can apply those same concepts to information security in a business organization so you can protect the decision cycle against all threats, whether they're viruses, intrusions, or attacks by miscreants," he says. "This then forces you to manage information security using that model rather than the technological model in which you merely make sure you have all the right technology in place. Information security officers following that cycle would be looking at a much higher level in terms of management concepts."

IT specialists will also find themselves in a more cooperative mode in the future, he thinks. Various organizations now monitor the networks 24 hours a day, such as the Computer Emergency Response Team (www.cert.org) run by the Carnegie Mellon Software Engineering Institute. That group works with users, software vendors, and the U.S. government to share information about viruses, worms, and other abuses. Another organization, InfraGard (www.infragard.net), is a coalition of private and governmental organizations, including the FBI, who have banded together to protect critical infrastructure in areas from agriculture to telecommunications.

Such cooperation is essential because, even as technology evolves, it opens the way for new vulnerabilities—and the villains have the edge. "The attackers only have to discover a single flaw in the new technology to abuse it, whereas the defender has to find all the flaws," says Baskerville. "That's actually impossible. Therefore, the defenders have to be able to deploy responses to threats very, very quickly. The vicious circle has moved to Internet speed."

It's harder to control student systems, since students are asked to comply voluntarily with regulations for patching systems and updating virus software. Arsneault recently implemented a user address registration system that kicks in when students get online in class; it allows him to track who is using the recommended software and who is not. "What we haven't decided is exactly how to deal with the folks who haven't installed the software," he says.

At Temple University's Fox School of Business and Management in Philadelphia, Pennsylvania, all students are required to install the school's approved anti-virus software. That software, Symantec's Norton AntiVirus Corporate Edition, is made available to students via CDs and downloads from the university's Web site. "We have been diligent," says Ariel Silverstone, Chief Information Security Officer at Temple. "They can't log on if they don't have it."

It's not quite as strict at Washington University's Olin School of Business in St. Louis, Missouri, which recommends Norton's anti-virus software but does not enforce its use. MBA students are required to bring laptops; if they order the preconfigured Dell option, it comes with the Norton software. "But we tell them that any anti-virus program is better than none," adds Scott Ladewig, manager of networking and operations. "For students who claim poverty, we direct them to a free adware program."

Students who live on the Wash U campus get the anti-virus software free as part of their housing fees. "We've looked at licensing it for other students who don't live in university housing, but we haven't gone down that road yet. It's expensive," says Ladewig. It's also management-intensive. "If I have 100 students using this software, how many of them live in the dorm, and how many taking classes here are really students at another school in the university? It's tricky unless the university decides to license the software for every student."

It can also be tricky to deal with executive education participants, who frequently bring laptops that have been configured by IT specialists back at the corporate headquarters. "We haven't really tackled this challenge," says Harvard's Arsneault. "But we do want to be able to identify the systems they're using and, if a machine is causing a problem, disable it. We'll probably do that with a MAC address registration application."

That MAC, or "media access control," address registration system directs users to the registration page of a virtual local area network (VLAN). They must supply details such as their names and domains before they're allowed full access to the VLAN. "The whole process takes 60 seconds, and then the user has full access to HBS network services," says Arsneault. "In addition, the IT group then knows who the person is and

when the person is on the network. The process only needs to happen once per PC."

Soldiers in Reserve: Redundant Measures

It's common practice for all institutions to back up data and store it someplace safe. But where is safe? And how much redundancy is enough? School administrators in New York are particularly haunted by these questions. Says Baruch's Downing, "We're probably more conscientious than most schools because the odds are greater that we'll be affected by terrorists. We've been at Orange Alert since 9/11."

When making backups, says Downing, the goal is to have them close enough for easy access—but not so close they're also destroyed by whatever catastrophe takes down the system. Because Baruch is part of CUNY, backup student and mainframe information can be stored on a systemwide mainframe.

Baruch doesn't stop at creating redundant data storage; the school also has more than one communications link for the campus network. "Before 9/11, many institutions only had one path for communications," says Downing. "If that link was destroyed or interrupted, they didn't have service. Since then, many places have invested in not only having another physical way in, but also in using another vendor."

Baruch is now part of a fiber-optic ring that includes a variety of educational institutions in Manhattan, says Downing. Fiber-optic networks, he explains, allow signals to go in reverse, as well as forward, so that they can still get to their destination even if there's a break in the loop. Because the signal travels at light speed, it arrives at its target in the same time frame, even if it has to travel farther to get there. "We're running that service in addition to the same connection that we had at the time of 9/11," he adds. "It would take quite an incident to create a disruption that would affect both of them."

Along this ring is a commercial telecommunications and networking facility where the university leases space. "We have servers in there that can be brought into action should something happen to our main computing system," Downing says.

All Flags Flying: Constant Communication

Since security is only as effective as the people practicing it, these administrators work to keep their constituencies informed. Most schools provide information about viruses or other vulnerabilities via e-mail, printed notices, and alerts posted on school Web sites. Ladewig says that the Olin School covers the issue of cybersecurity during orientation for incoming students, which reinforces communications sent out electronically before students even arrive on campus.



Others go on an all-out campaign. For instance, Temple instituted an awareness crusade that makes it clear to students and faculty how important it is for them to join in the effort to safeguard data. Writing in the *Educause Quarterly*, Silverstone describes the school's efforts. "The awareness campaign is disseminated through candy dispensers, posters and fliers, and newsletters and Web sites—all carrying the security-awareness slogan: 'The Bug Stops Here!' We even broadcast information security infomercials on big-screen televisions situated in different lobbies and hot spots around campus," he says. "We also introduced noncredit classes covering IT issues, including security. Although interested students had to take the classes on their own time, and some courses extended for a full week, the classes filled up quickly."

Even so, sometimes students continue to be cavalier about taking simple safety precautions. That's when IT departments must take precautions for them. For instance, Baruch encourages students to change the default passwords they are issued when they enroll. Last summer, a check revealed that 89 percent of the students had not done so. Since the default passwords are generally crafted of readily available student information—such as the last digits from their ID cards—they're easy to steal.

"Not only can someone else get into a student's account and get access to all his personal information, but he can act on that student's behalf," says Downing. Among other things, one student can de-register another from a full class to make room to register himself. Therefore, over the summer, Baruch changed all the student passwords. "The school newspaper contacted us to say it was disruptive. But we viewed it as an opportunity to educate students on the importance of protecting their information," Downing says.

Girding Up for the Battle Ahead

It seems that universities' attitude toward cybersecurity can only go in one direction—toward more controls and tighter access. Many school administrators are closely watching the development of new products that will require authentication before students are allowed to log onto the network or that will quarantine computers that don't have the right updates.

Arsneault expects corporations to adopt such measures before schools do and notes that it will be harder for schools to implement systems that will abruptly deny students access. "Especially if you don't have tech support 24/7, you don't want to be knocking people off the network," he says. "If a student has an assignment due at 6 p.m. and he can't get on the network and there's no one to help him till the next morning, that's not good."

What the future really holds might be a higher degree of caution from human users, says Rodney J. Petersen, policy analyst and security task force coordinator for Educause, a nonprofit association geared toward advancing higher education through information technology. For instance, Petersen expects to see more data encryption, which will keep information safe even if someone hacks into a file or steals a laptop. Encryption techniques exist already, of course, but average computer users don't bother to learn them. "The technology needs to be transparent and easy to use," Petersen says.

He also predicts that there will be fewer multiple repositories of data, with files of personal information being kept at the library, the registrar, the HR department, the recreation center, and so on. Instead, he expects there will be one central repository of data that is checked by other entities that need to authenticate a person's identity.

Downing believes human, not technological, improvements will be necessary to make schools more secure. He says that administrators need to do a thorough self-assessment before trouble actually hits to determine what their policies should be and what they can afford to implement.

"How much are they willing to invest for peace of mind? That's an institutional decision that goes beyond the IT department," says Downing. "When there is a situation like a power blackout, do they want us to evacuate the computing center, or should we stay to make sure all the data is secure? Those decisions need to be made in advance and implemented campuswide."

Finally, everyone involved in cybersecurity needs to realize that their jobs are never over. "This is an endless game, unfortunately," says Arsneault. "We've made monumental progress in the last couple of years, but there's always something more coming."

In another decade, the preventative measures put in place right now might appear to be curiously medieval, while the weapons used against them might seem equally quaint. But for today, the attacks launched against a university's cyber fortress must be viewed as state-of-the-art, designed to bring down the ivory tower. The war is real, the enemy is armed, and the academic defenders simply can't afford to lose. **Z**

Web Works



Now that the Internet has evolved from mere novelty to sheer necessity, a Web site doesn't just complement a business school's marketing strategy. It *is* the marketing strategy.



t's quick. It's comprehensive. It has changed the way we live. It's the Internet, which has evolved from a text-based playground for college-age whiz kids to an interactive hub of information for everyone. No longer just a public resource, it's now *the* resource that people use most to work, chat, research, and learn.

This has led business schools to examine more closely their Web-based marketing and communication strategies. Such examination is a relatively new phenomenon among higher education institutions, says

Louis Malafarina, CEO of Ripple Effects Interactive, a web design firm based in Pittsburgh, Pennsylvania. When the company first began serving the higher education market just four years ago, most schools wanted their Web sites to work only as peripheral extensions of their offline marketing plans.

"The first time we worked with business schools, they viewed a Web site as a continuation of their offline, traditional marketing activities. Our business school clients just said, 'Post our information,'" says Malafarina. "Now they're saying, 'Sell our school.' Schools realize that Web sites have become the cornerstone of their marketing activities. Today 100 percent of people choosing a higher education institution will visit its Web site, so that site becomes a school's most powerful tool for outreach."

The Internet's evolution has brought with it a considerable learning curve for all organizations, business schools included. Business school Webmasters are exploring how users interact with their sites in more depth: How are people using the site? What pages do they visit? How long do they stay? What do they want when they get there? The answers to those questions will be the secret to creating b-school Web sites that meet—or exceed—the expectations of users from the moment they hit the home page.

User-Centric Universe

As business schools go through major redesigns, one lesson has become clear: An effective Web site focuses on what users want to hear more than on what a business school wants to say. That shift alone has moved many schools to rethink how their Web sites appear and function, says James Ho, a professor of information and decision sciences at University of Illinois in Chicago's College of Business Administration. In 1996, Ho wrote a well-circulated paper titled "Lessons of Business School Web Sites," which examined just how business schools should and shouldn't utilize their online real estate.

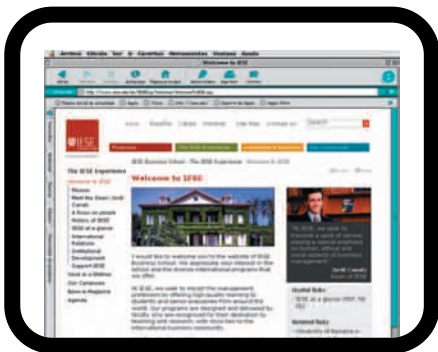
"In 1996, it was clear that most business school Web sites were designed from the technician's or designer's point of view—they didn't have the user in mind," says Ho. "I wrote that a site must be customer-focused, something that

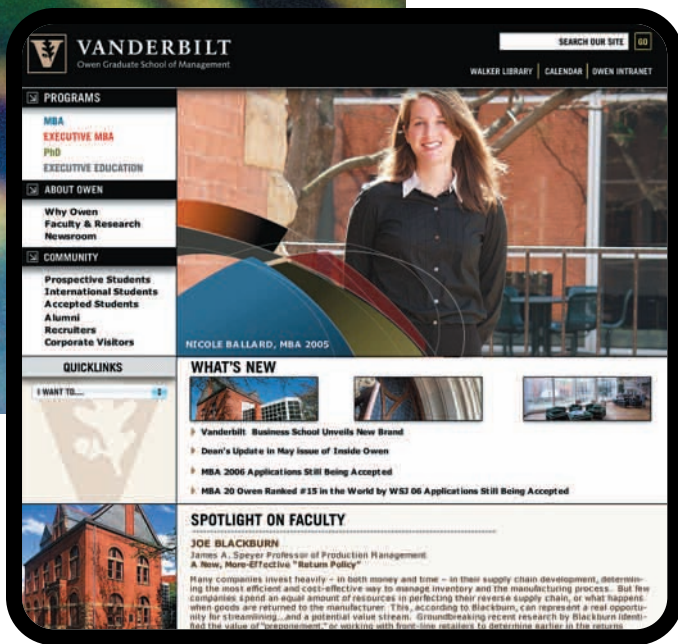
has now become obvious. Business schools have learned to target their stakeholders by category, including prospective students, current students, alumni, faculty, and corporations."

Even so, Ho believes that some business schools still have work to do in creating sites that are truly intuitive and user-friendly. For instance, some sites don't make it clear on their home pages whether a link called "Faculty and Staff" will take visitors to an area of the Web site *about* faculty and staff or *for* faculty and staff. Other schools allow their sites to fall victim to an inherent truth of business education—its generation of an overabundance of information.

"A business school has so much information to convey, it's hard to design a clean-cut Web site. It can't be like Google with only one window," Ho admits. Some business school sites are viewing themselves as business portals, including features such as stock quotes and weather reports; others want to say everything about themselves on the home page. Both instances may result in sites with extra features that users don't necessarily want and content they don't really need. "In an

by Tricia Bisoux





Vanderbilt University's Owen Graduate School of Management recently began a major branding initiative, which administrators wanted to communicate clearly through the school's new Web site. A key feature on the home page is a prominent image window. When users first visit the home page, designed by Ripple Effects, they are greeted with the school's brand slogan, "Discover this place. Shape your world," followed by a slide show of images of Owen students.

effort to become more comprehensive, many business schools have made their sites unnecessarily overwhelming," says Ho.

Even worse, such tactics may drive away the central audience a business school most wants to attract—first-time users, who are often prospective students. This group most often comes to the site to experience the school visually, via images, quick-read links, and bullet-pointed information, not to read lengthy blocks of text. For this audience, says Ho, a Web site's top-level pages should be airy and simply organized, with links leading to more detail for those who want more information.

To best achieve that balance between simplicity and usefulness, many business schools are turning to external vendors to redesign their Web sites with their users in mind. For instance, Vanderbilt University's Owen Graduate School of Management in Nashville, Tennessee, worked with Ripple Effects last year to completely redesign its site at www.owen.vanderbilt.edu. The site is now the linchpin of the school's marketing strategy. The school's brand, exemplified by the phrase "Discover this place. Shape your world," permeates the entire Web site, through images, content, and Macromedia Flash presentations.

The goal for the redesigned site was threefold, says Yvonne Martin Kidd, the Owen School's director of marketing and communication. The school wanted its site to help prospective students make the important decision about their education, enhance the school's new branding campaign, and connect with each visitor on a personal level. "We wanted the site to be easier to navigate, program-centric, and user-centric," says Kidd. "The Web is the way people make decisions these days. We need to drive people to our Web site so we can help them make those decisions."

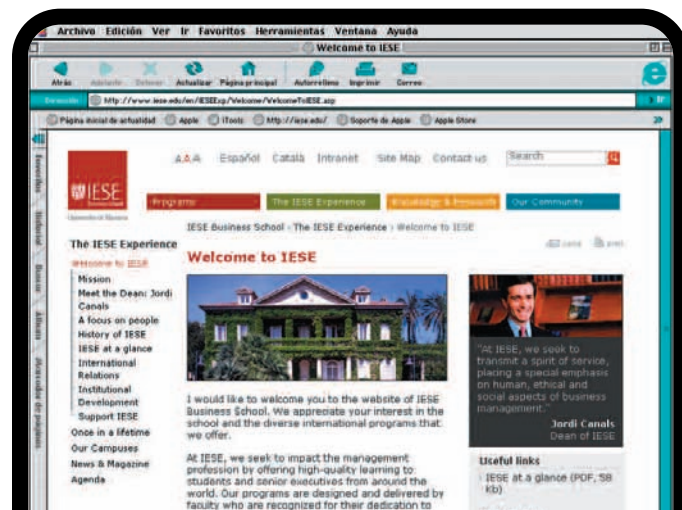
The Newest Utility

The Internet is now an inextricable part of life for those in the market for management education. In fact, Web sites have become commodities, like automobiles, says Wayne Marr, dean of the School of Management at the University of Alaska Fairbanks. "People view the Internet as a utility, like electricity," he adds.

In November 1995, Marr and partner Hal Kirkwood ranked the best and worst business school Web sites, judging them by criteria such as navigation, content, and usefulness. At the time, business schools with an online presence had increased to more than 200 from about 30 in only six months. Dead links, incomplete faculty listings, scant informational resources, and woefully out-of-date content plagued many sites, says Marr. Only a few, such as those run by MIT's Sloan School of Management, Harvard Business School, and Northwestern University's Kellogg Graduate School of Management, earned high praise from Marr and Kirkwood. Those sites, says Marr, were precursors to the modern b-school site, complete with faculty biographies, media pages, directories, research databases, course catalogs, virtual campus tours, and online applications.

Efforts such as those by Marr, Kirkwood, and Ho would be much more difficult to accomplish today, they say, now that business school Web sites number in the thousands. In addition, the designs of today's business school Web sites have begun to converge, becoming almost indistinguishable from one another, says Marr. "Business schools are finding the sites they like best and replicating them. I don't mean to say they're all beginning to look the same—but, well, they are."

IESE wanted its new site to be user-friendly, bilingual, and decentralized so that each department can maintain its own content. Launched last September, the redesigned site is targeted especially to first-time users, who should come away from their visit with a concise yet comprehensive idea of IESE's mission, brand, and programs, says IESE's Larisa Tatge.



What's Ahead for Web Design

Business school Webmasters will have much to do over the next few years. They must tweak, perfect, and overhaul their sites into ergonomically satisfying Web environments for all a business school's constituents. All that tweaking will require more than great design. It will require even more robust infrastructures emphasizing even more sophisticated approaches to certain facets of Web site design:

Avoiding "TMI Syndrome"—Business schools the world over can succumb to the "too much information" pitfall, inundating users with copy from the moment they enter the site. "When my son surfs the Internet, he likes pictures, diagrams, simple layouts. He doesn't want to read a lot of text," says Wayne Marr, dean of the University of Alaska Fairbanks. "As my eyes get older, I don't want to read it either."

Web designers recommend a "simpler-is-better" approach, at least at first glance. They advocate that top-level pages incorporate quick-read sound bites and a limited number of links. Those links can then lead to more comprehensive information for those who want it.

Simplifying Searches—With so much information to navigate on their Web sites, many business schools have incorporated search technology from companies such as Google or Inktomi. But rather than help users find what they want more quickly, these search functions can often lead to frustration, says James Ho of the University of Illinois at Chicago.

Google, for example, has a special way of ranking results, in which the first time any user searches for an item, the results are random. As more users search, those links chosen most frequently percolate to the top. That model works well when there are millions of users, says Ho, but not so well when the number of users is much fewer, such as on a business school site. As a result, a search for "MIS" may leave the MIS Department buried at No. 647 in the list of returned responses, rather than at No. 1. Academic site designers will be eager to find the right search technology to address this problem.

Building Traffic—A Web site is one of the most effective ways to build relationships with three important categories of

users for a business school: prospective students, alumni, and corporate stakeholders. But first, the school has to get them there. A primary way to achieve that goal is to send e-mail messages that target a business school's many audiences on an ongoing basis. Users who input their e-mail addresses at the site then receive regular updates. Some schools are also using a format called RSS—or "rich site summary"—to distribute summaries that inform users when site content changes.

Tracking Usage—Once business schools have succeeded in driving traffic to their sites, they'll want to track patterns of usage to learn what areas of the site garner the most—and least—attention. "For the first full month our new site was up, it received 85,000 unique visits," says Yvonne Martin Kidd of Vanderbilt University's Owen School of Management. "But we have no apples-to-apples comparisons to know whether that number is high or low. We want to do a far better job of analyzing traffic and seeing what works in terms of driving applications. We want to start building those benchmarks, particularly for key landing pages such as for the MBA program."

Benchmarking—No one currently ranks business school Web sites, but Webmasters are beginning to watch their placement on top search engines such as Google and Yahoo more closely than ever. "We're looking at how we rank in search engine searches to see how effective our Web site is and what we can do to improve it," says Scott Rolph of MIT's Sloan School of Management.

Building Consensus—Collaboration has always been important to Web site design, but it will become even more so as business schools develop sites that are the online equivalent of their physical campuses. In this case, everyone needs a vote, says Louis Malafarina of the Web design firm Ripple Effects. "Although this might sound self-serving, it's helpful to bring in an outside party to broker these discussions," he says. "This helps everyone come to a consensus and realize the benefits of yielding individual agendas to the broad function a Web site must fulfill."

Such homogenization in design and navigation isn't necessarily a bad trend. The adage "form follows function" has manifested itself in modern Web design, with standard protocol requiring "About Us" and "Contact Us" links on the home page; navigational links along the left or top; a search box at the upper right; an emphasis on content over graphics; and a prominent logo that, when clicked, always takes users back to the home page. A site that strays too far from these standards most likely will frustrate, not impress, users.

Now that navigation and design choices are somewhat limited by user expectations, business schools must look to other factors to differentiate their sites from competitors' sites. They must go beyond conveying the standard "we'll make you a leader" message, says Malafarina of Ripple Effects.

"The reality is that all business schools are speaking to sim-

ilar audiences and have similar messages," he emphasizes. "But MIT's Sloan School of Management isn't going after exactly the same students as Northwestern's Kellogg Graduate School of Management. A business school can differentiate itself by using its Web site to claim a position in the marketplace, so that it *isn't* going after exactly the same students or offering exactly the same educational experience."

Ready, Set, Launch!

Like the Owen School, other business schools have been redesigning their Web sites—especially their home pages. For example, Ripple Effects also recently worked with the Tepper School of Business at Carnegie Mellon University in Pittsburgh, Pennsylvania, on its site redesign. Its new site launched in January. Ripple Effects' Malafarina and others

'A Universe of Content' — The Emergence of the Intranet

With Web real estate in the business school firmly established, schools are now looking to add on, remodel, and create areas of their sites targeted specifically to their internal communities. Called *Intranets*, such online environments have become a substantial part of a business school's online activity, providing students, faculty, alumni, and corporate recruiters a range of services and resources.

Since The Wharton School at the University of Pennsylvania in Philadelphia, Pennsylvania, first developed its Intranet ten years ago, it has gone through several evolutions. Its latest incarnation, affectionately called Spike, now integrates all of the school's separate services in one place, allowing students to read about Wharton news and upcoming events, reserve a group study room, or even pay or deposit money into their campus printing accounts.

When Spike started, it was designed with a "portal mentality," says Kendall Whitehouse, Wharton's director of advanced technology development. That is, Spike aspired to be an all-in-one, customizable site that provided external news and resources as well as Wharton-specific information. That, however, became too cumbersome—and it wasn't what students wanted.

"Students didn't want Spike to include everything they needed in their lives. They wanted it to be everything they needed for their educational experiences," says Whitehouse. "We realized that CNN could give them their daily news bet-

ter than we ever could. Where we could excel was in providing Wharton-only content."

That simplicity has led the site into a mainly text-oriented presentation. Because Spike is an Intranet, rather than an Internet, environment, it can afford to include more links and more text. Spike users are going there for comprehensive access to Wharton information, and they are willing to navigate a more complex interface. Easy Intranet navigation is still crucial, however, so students can quickly find what they need.

Whether they're for an educational institution or a corporation, Intranets are built by the enterprise. As a result, Intranets can become more about what the enterprise wants to tell its constituents rather than what those constituents want to hear, says Whitehouse. That "institution-first" mentality is as much a mistake with Intranets as it is with the Internet, he adds. "The key to an effective Intranet is to give those constituents a blank canvas and let them design the product. It should serve as their mental mind map, rather than reflect the educational institution's structure."

Spike content is currently displayed on large plasma screens throughout Wharton's central facility, Huntsmann Hall. Eventually, Whitehead plans to branch out into other media, making Spike content accessible via PDAs and cell phones.

"We don't want our students to have to check here, there, and everywhere to be fully informed," says Whitehead. "It's the same information everywhere. It's one universe of content."

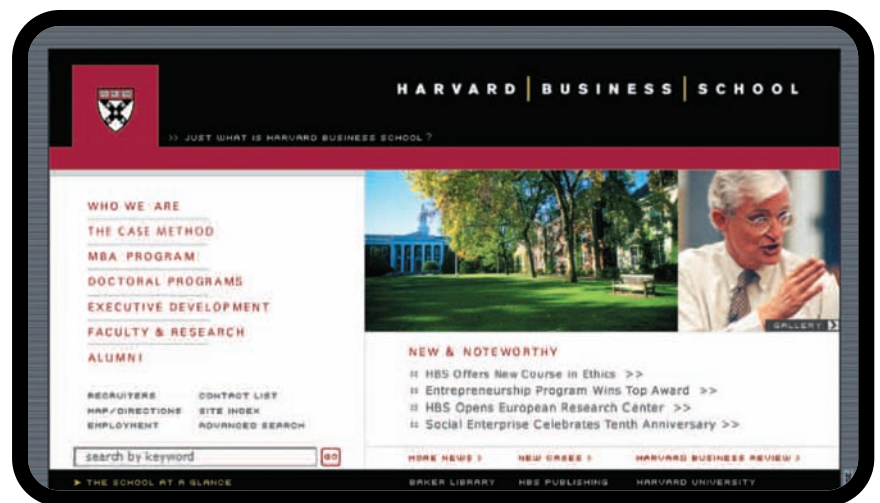
agree with Ho that the home page is the best way to make an impression on first-time visitors—and all want that impression to be a good one. Almost invariably, b-school Webmasters say they want their pages to be user-friendly, adaptable, and expressive of the school's mission and brand.

IESE Business School of Barcelona, Spain, launched the most recent redesign of its Web site, www.iese.edu, in September. The school wanted the site to accomplish three main objectives: implement a user-friendly design that conveyed IESE's corporate image, introduce a content management system that allowed new content to be added in English and Spanish, and create a decentralized organizational system that enabled each department to oversee specific sections.

IESE's new home page includes more space for news and events, and a "Highlights" list to promote programs. The site also incorporates a section called "The IESE Experience," aimed at visitors. "We wanted to give visitors a comprehensive view of IESE," says Larisa Tatge, assistant director of IESE's Web department. "We wanted the site to remain uncluttered, yet informative."

MIT's Sloan School of Management in Cambridge, Massachusetts, launched a redesign of its Web site at

mitsloan.mit.edu last year. When the redesign process began four years ago, staff conducted intensive testing of the site's navigability, accessibility, and usability, says Scott Rolph, associate director of communication and Web management. "Any attempt we made to jazz up a page that compromised the efficiency of navigation posed a problem," says Rolph.



Harvard's new home page, launched last February, is designed for simple navigation, including only those key links necessary to "point users in the right direction," says Sam Hainer, associate director of Web strategy.



Members of the Wharton community can access Spike's Intranet environment from their own devices, or view it on plasma screens within Huntsman Hall, the school's central building.

"We also had to ward off attempts to add content. So many thought their programs deserved a top-level link, but we were more worried about users. If you present users with a sea of links, you won't give them a good experience."

The Sloan School's solution was to create a home page that includes only seven links on the left side, and a "Spotlight" box that includes a news teaser. However, once users place a mouse arrow on one of those links, a new tree of links appears. This layering effect, accomplished through Flash technology, allows the Sloan School's home page to remain visually simple while maximizing access to information.

When Harvard Business School launched its new home page at www.hbs.edu last February, the school's objective was to simplify its navigation and add links to two new sections of the site, titled "Who We Are" and "The Case Method." Like the Sloan School's site, the HBS site incorporates many links within a simple design: When users first come to the site, the bottom of the home page is free of text. However, once they click a small link called "School at a Glance," the lower right fills with additional links to the school's various programs, centers, and departments.

Sam Hainer, associate director of Web strategy at HBS, says that the goal was to make the page user-friendly, quick, and reflective of the school's mission. "The home page needs to point users clearly in the right direction, while also making sure that key information about HBS is presented on the top

layer," says Hainer. The ongoing challenge, he adds, is to use navigation tools and design to keep the site's information accessible yet controlled, and the user experience uncluttered yet compelling.

Cultivating Connections

Perhaps the most significant trend in business school Web site design is customer relationship management. Rather than merely using sites to facilitate one-time interactions with users, more business schools are using their sites as springboards to developing ongoing customer relationships. Once prospective students enter an e-mail address, they transition into a more refined marketing environment, where they receive e-mails informing them of school accomplishments or Flash presentations about student life.

"We are seeing a strong trend toward CRM," says Malafarina of Ripple Effects.

"Schools are staying with prospective students from the moment they request an application until they matriculate. They want to create such excitement that students won't even wait to hear from other schools before deciding to enroll."

Kidd of the Owen School agrees that a primary function of its new site is to foster similar ongoing connections. "We're using a lot of direct mail and other outreach efforts to drive prospective students to the site," Kidd says. "Once they get there, we want to give them all the information they need to understand that this is the place for them. Our marketing campaign is in place so that more visits to the site result in online applications. Our goal isn't so much to generate repeat visits as it is to get prospective students to the site and interested in building an ongoing relationship with us."

The current boom in Web site redesign is widespread and ongoing among business schools, as schools move their sites from the periphery to the focal point of their branding and marketing strategies. At the same time, they must assimilate hundreds, often thousands, of pages of content into easily navigable and ostensibly simple online environments. That's no small task. But as schools realize that their traditional four-color printed brochures may survive only minutes before going from mailbox to trashcan, they know their Web sites will be their best opportunity to reach users where they now so often live—online. **Z**

An Ethical Education



Candidates with unsavory resumes might want to think twice before applying to The Wharton School or the University of California at Berkeley. In the last few years, each of these institutions has organized a system of background checks to weed out untruthful or otherwise unethical applicants to their business schools. Reportedly, Berkeley's Haas School of Business rejected about five percent of the initial candidates for fall 2003 because these background checks revealed inaccuracies on resumes. Some applicants fudged work dates to conceal layoffs, for instance, or engaged in other forms of fibbing.

It's hard to blame these elite schools for sifting out liars and cheats. In today's environment of corporate scandal, many business and political leaders have pointed to business schools as the logical institutions to instill ethics in today's executives. With the background checks, Haas and Wharton are attempting to emphasize the importance of ethics to applicants for the next year's class before they're even enrolled.

While many schools have been focusing on ethics education, opinion is divided on the best way to teach the topic. Should ethics be covered in a stand-alone class or infused into a number of relevant functional courses? Should such courses be required of all students? And even after ethics courses have been added to the curriculum, how can we be sure we are teaching students what we wish them to learn?

To answer that final question, one of my colleagues and I, both professors at the University of Georgia, have been conducting student surveys for three years. Our focus has been the stand-alone business ethics course taught at the undergraduate level. While MBA ethics courses get more media coverage, undergraduate ethics courses are no less vital and affect larger numbers of business students.

With the study, we wanted to answer three questions: What were students learning in business ethics courses? How were they learning? Compared to other classes, how valuable were these classes in preparing students for their careers? With this information, we knew we would be better equipped to deliver an ethics education that would help prepare students for their careers in the corporate world.

Learning about Ethics

To find what students were gleaned from their ethics courses, we asked them to rank seven possible outcomes of their classroom experience. Students indicated that they were learning the following, in order of importance:

1. Greater awareness of the ethical aspects of a business situation.
2. Ethical concepts that will help me analyze decisions.
3. Ethical principles that can help me make better decisions.
4. Ways to be a more ethical person.
5. Reasons my classmates see things so differently.
6. Reasons my classmates see things so similarly.
7. I'm not sure what I learned in this class.

Discovering what and how students learn in ethics courses enables professors to design even more effective courses.

by Archie B. Carroll

Since a key goal of an ethics education is to help students perceive ethical issues that might not be readily apparent, it seemed logical to us that awareness would rank highest. In fact, even awareness sometimes requires moral imagination—the ability to perceive that a web of competing economic relationships is also a web of moral dilemmas are not always immediately obvious; often they must be searched out by someone attuned to complex situations. We believe that an ethics education is successful if it can teach students to develop a sensitivity to such situations—and a willingness to explore them.

The fact that ethical concepts ranked second indicated to us that our students generally appreciated, if not understood, their importance. Concepts are descriptive. In an ethics class, they include ideas such as “integrity strategy,” “descriptive versus normative ethics,” “stakeholder management,” “business ethics,” and “moral development.” These concepts can be extraordinarily useful to students in their careers since they often act as frameworks or models that help executives in decision making and analysis.

By contrast, principles are more abstract; and students sometimes find it difficult to apply them in practical situations. Ethics textbooks generally explore three key principles—rights, justice, and utilitarianism—and some ethics educators also discuss the Golden Rule. I found it encour-

aging that, despite the difficult and abstract nature of ethical principles, students ranked them as third in importance among the lessons they learned in ethics class.

Equally encouraging was that “how to be a more ethical person” was ranked fourth. Quite often, students seem to resist this as a goal in an ethics class. It sounds neither academic nor fashionable to say that a course is teaching students to be more ethical, as it implies some deficiency that must be overcome. However, this ranking suggests that students might not be entirely resistant to the idea.

What students also learn in ethics class is that some of their classmates view topics much differently than they do, which is an essential truth for managers attempting to resolve ethical dilemmas in the workplace. Most often, students come to this realization through case study discussions, when they discover that not everyone else has responded to a particular set of circumstances in the same way that they have. Realizing that the world is full of people with differing viewpoints—a choice ranked fifth by students in this survey—is much more important than realiz-

ing that some people have the same viewpoint, a choice ranked sixth.

It was a huge relief to see that the lowest-ranked item on the list was “I’m not sure what I learned in this class.” It was a gamble even to put this item on the questionnaire. However, since the questionnaires were completed anonymously, I believe that this ranking reflected honest answers.

Classroom Approach

Just as important as discovering *what* students learned was discovering *how* they learned. We asked students which teaching and learning methods were most effective as they studied ethics, and they ranked the choices this way:

1. Lectures/presentations by the instructor.
2. Instructor-led discussions after student case presentations.
3. My own reading of texts/articles prior to class.
4. Studying for and taking the exams.
5. Case presentations by student groups.
6. My own reading and studying of cases prior to class.

Encouraging Ethics at Eller

More than half the students at the University of Arizona’s Eller College of Management in Tucson, surveyed two years ago, admitted to cheating at some point during their academic careers. The actual figure—54 percent—seemed both astounding and unacceptable to ethically minded students.

Nonetheless, the number turned out to be close to the national average, based on results of a 2003 study of plagiarism at U.S. schools. Rutgers University management professor Donald McCabe led the study, which surveyed more than 18,000 students on 23 campuses. More than half the undergraduates admitted one or more incidents of serious cheating on written work, with 22 percent admitting to one or more incidents of serious test cheating. Sixty-three percent of students majoring in business confessed to cheating in the past year.

“The statistics in these reports are astounding, but not surprising, due to the competitive nature of business colleges,” says Eller student Tara Abbott. To reverse the trend, Eller students began working with faculty and administration to develop the Eller College Integrity Initiative, or E-tegrity for short. “Our student-driven board of honor and integrity was created to help eliminate academic dishonesty,” says Abbott. E-tegrity board members, of which Abbott is one,

have developed a range of new initiatives to integrate integrity into the college’s culture:

The Eller College student oath. When freshmen business students electronically schedule their first appointments with academic advisors, they are required to review the integrity oath and accept its terms. The oath reads: “*We, the students of the Eller College of Management, believe in fostering an academic environment where competition is fair, integrity is promoted, and academic dishonesty is punished. As members of the Eller community, we voluntarily pledge our support for knowing and abiding by The University of Arizona’s Code of Academic Integrity, exemplifying ethical behavior in both an academic and social setting, and agree to challenge and make known any acts of academic dishonesty.*”

Later, when students apply for upper-division status, they are asked if they have cheated at the university. Their answers are checked against student records.

A student honor board. Members of the board review policies and issues revolving around the student oath. These students are charged with promoting a culture of integrity and will work with faculty and administrators to arbitrate integrity violations.

An E-tegrity Web site. Here undergraduates can find information on policies and codes, answers to frequently asked questions, guides to student resource guides, and an application for serving on the Eller E-tegrity Student Board. Students also can use the site to report academic dishonesty by engaging an

Maybe the appropriate question is not whether ethics can be taught, but whether ethics can be learned. Considering my own personal experiences, I would say the answer is YES.



While modern educational theory holds that hands-on learning is best for students, these students obviously preferred professor-directed learning when the topic was ethics. This might have been because they know very little about ethics before entering the course, so they are willing to defer to their instructors' knowledge on this particular topic.

The students also seemed skeptical of their fellow students' ability to present worthwhile case studies and unsure of their own ability to read and study on the topic outside of class. While this might just reflect the fact that they don't put much effort into preparing for case discussions, it might also underscore the notion that they feel unsure of themselves in the arena of ethics. The guidance of an experienced instructor appeared to be welcome.

In any case, students seem to value case studies and discussions, since they give these high marks in end-of-course evaluations. It's likely they find case studies valuable both because they see the importance of the team-building experience and because case discussions give them a chance to explore others' points of view.

electronic reporting tool that feeds directly into the college's student management system.

Plagiarism-detecting software. The college has purchased Turnitin.com, a Web-based software system that allows professors to cross-check students' papers automatically against databases to identify plagiarism. The software also can teach students how to properly cite sources and avoid potential plagiarism issues.

E-tegrity Week. The E-tegrity initiative was kicked off in November 2003 with a week of informational events that culminated in an ethics case competition. The school partnered with the Better Business Bureau for the competition, in which student teams presented solutions to a hypothetical business ethics problem. Deloitte & Touche sponsored the event, offering team prizes. The Better Business Bureau presented the winning team with a \$500 cash prize; executive-in-residence Bill Bowen wrote a \$200 personal check to the runner-up. Plans are under way to make this a statewide competition with the potential to go national.

Abbott believes that students, faculty, staff, and administration will all benefit from the comprehensive E-tegrity program. "The Eller College is making its learning environment fair, and at the same time it is giving its students the skills that are essential in a business world riddled with dishonesty," she says. "We believe that changing the culture of Eller is nothing short of helping to change the world."

Once the data from these two sets of questions were analyzed, I began to revise the structure of my ethics course. Other studies have indicated that students prefer case studies centering around names they recognize, such as Wal-Mart and Nike, despite the fact that disguised cases with unidentifiable names are often better learning platforms. While keeping case studies in the ethics course, I have eliminated the group presentation of cases; I now lead discussions myself. In addition, I put more importance on my own lectures. In fact, I make a short presentation, then I hold a dialogue with the students. I continue alternating lectures and dialogues throughout the class period.

The Value of Ethics

We still wanted to learn how valuable students considered their ethics courses in comparison to other management courses, particularly as they thought about their future careers. The questionnaire asked them to rank six required classes in order of importance, and our students responded:

- | | |
|--------------------|---------------|
| 1. Management | 4. Finance |
| 2. Business Ethics | 5. Accounting |
| 3. Marketing | 6. Economics |

Since the ethics course is required for management majors and is an elective for other business majors, most sections are composed of management students. Therefore, it didn't surprise us that management courses are considered to be of the greatest value. Likewise, these management majors often are less interested in quantitative finance and accounting courses, so it's also logical that they would rank those courses low while ranking softer skills of ethics and marketing high. Nonetheless, it was encouraging for us to see that undergraduate management majors regarded ethics classes as the second most valuable course they will take in school.

I think it would be intriguing to ask the same question of finance, accounting, and economics majors, who sometimes see soft skills as less relevant to their careers. Recent accounting and finance scandals, however, make it clear that ethics are essential even to executives in these fields.

The Debate Continues

Despite surveys such as mine, I realize that many management educators will still be grappling with a basic question: Can business ethics really be taught? The question is debated at meetings held by organizations such as AACSB International, the Society of Business Ethics, the Social Issues in Management Division of the Academy of Management, and

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Methodology

To collect information about ethics education, I first drafted an open-ended questionnaire and administered it to an initial class of undergraduate business ethics students. Their answers were converted into the official questionnaire, which was administered over three years to students in business ethics classes required of management majors at the University of Georgia, a large state university.

The questionnaire was administered by two professors within the management department. One taught from a more traditional management perspective, the other from a philosophy-oriented perspective. The management professor gave multiple-choice exams, and the philosophy professor gave essay exams. Nonetheless, the two courses were structured similarly so comparative longitudinal data could be gathered from multiple classes.

The data in this study were drawn from four sections taught by the management professor and three sections taught by the philosophy professor over a three-year period. All questionnaires were administered during the final week of the semester. By the end of the survey period, 204 students had provided data. In a few instances, some of the rankings did not match exactly between the management teacher's classes and the philosophy teacher's classes, but variations were minimal. Results for the combined class rankings are presented in this article.

the International Association for Business and Society. Even 2,000 years ago, philosopher Socrates argued the issue with his fellow Athenians. He believed that ethics consisted of “knowing what we ought to do,” and he asserted that this knowledge could and should be taught.

Maybe the appropriate question is not whether ethics can be taught, but whether ethics can be *learned*. Considering my own personal experiences, I would say the answer is “yes.” People who doubt it should think about what they believed was right and acceptable when they were teenagers, and compare those beliefs to the ones they hold today. Case closed.

The next question, then, would be one of pedagogy: Can business ethics be learned *in the classroom*? My survey indicates to me that they can. While this study was limited in scope, I believe it accurately portrays how students perceive their ethics courses, not only in terms of what they learn, but in terms of how ethics will affect their business careers. I feel it is essential to understand what methods students respond to and how professors can reach students more effectively. Armed with that information, we can make sure our students leave their undergraduate studies with a firm grasp on how to behave ethically in the corporate world. **Z**

Archie B. Carroll is professor of management at the University of Georgia's Terry College of Business in Athens. He also holds the Robert W. Scherer Chair of Management and Corporate Public Affairs and is director of the Nonprofit Management and Community Service Program.

The
on
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Some critics claim a master's degree in business has little job-market value. But crunching the numbers reveals substantial long-term benefits to graduates with an MBA.

The darling degree of the 1990s was the MBA, which has been described as the ultimate business credential. Yet the debate regarding the value of the MBA has never been more contentious. Some critics argue that the luster of the degree has been tarnished by an oversupply of MBAs, excessive tuition at top-20 schools, an uncertain economy, and corporate misconduct. Others use anecdotal evidence to declare that an MBA has very little effect on a graduate's subsequent salary or career.

However, a macroeconomic analysis of the value of an MBA earned in the U.S. proves these critics wrong. This analysis doesn't compare MBAs to high-powered groups working as consultants, or to CEOs without professional educations. Instead, it simply attempts to show whether or not average, plain-vanilla MBAs can expect to fare better or worse than average college graduates over the entire course of their careers.

by **Antony Davies**
and **Thomas W. Cline**

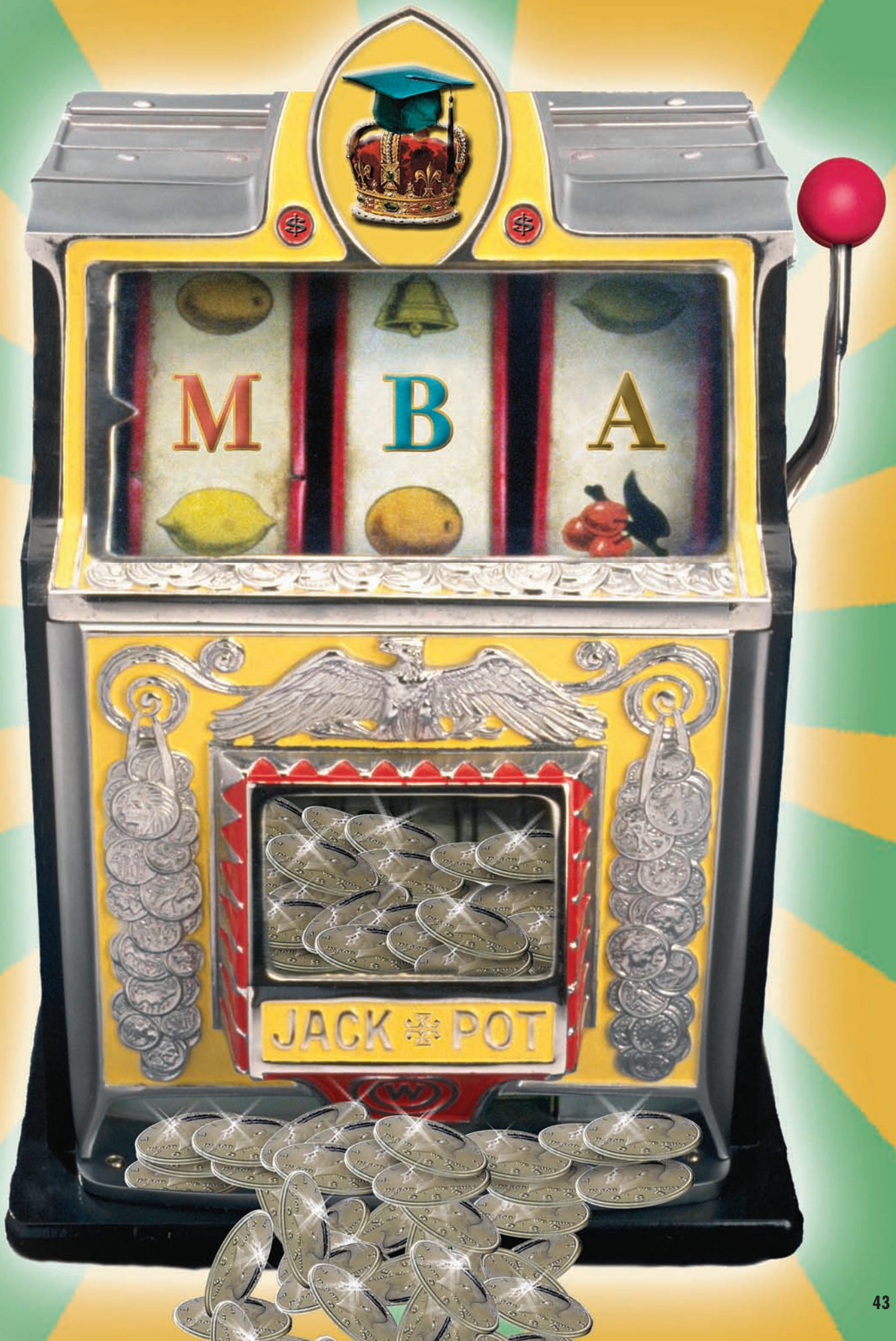
illustration by Lou Beach

Deconstructing the Benefits

Four economic benefits are linked to obtaining an MBA degree: a higher starting salary, greater compensation growth, more stable long-term employment, and a higher likelihood of participating in the workforce.

Starting salaries. In 2002, the median full-time MBA student earned \$50,000 before obtaining an MBA, according to The Graduate Management Admission Council's "The 2003 Global MBA Graduate Study." Immediately after completing the MBA program, that same student expected to earn \$75,000, excluding signing bonus.

Compensation growth. Since 1993, the expected annual wage growth for workers with professional degrees, including MBAs, has exceeded inflation by more than two percent. Those figures are provided by the Statistical Abstracts of the United States for the years between 1995 and 2003, which covers average annual wages for those with BS, BA, and professional degrees.



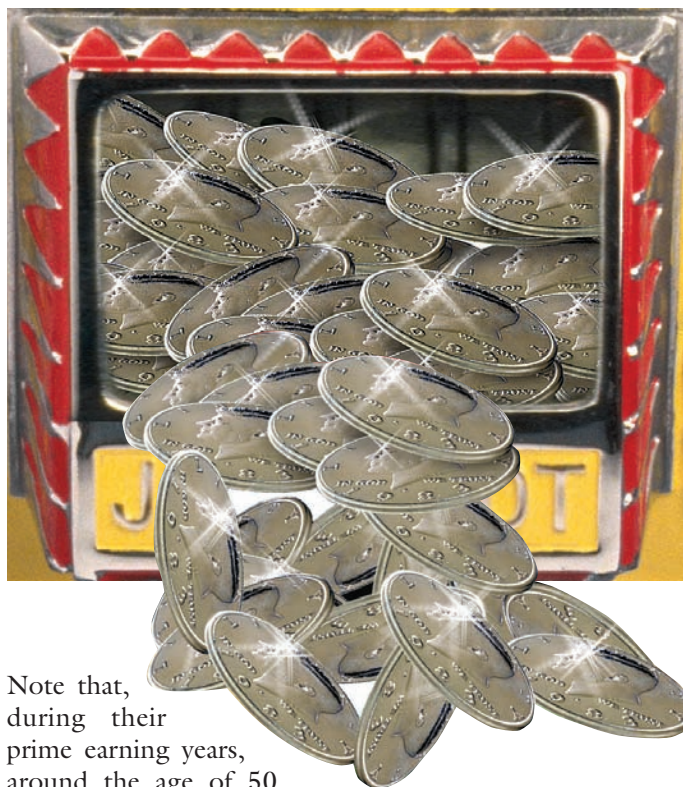
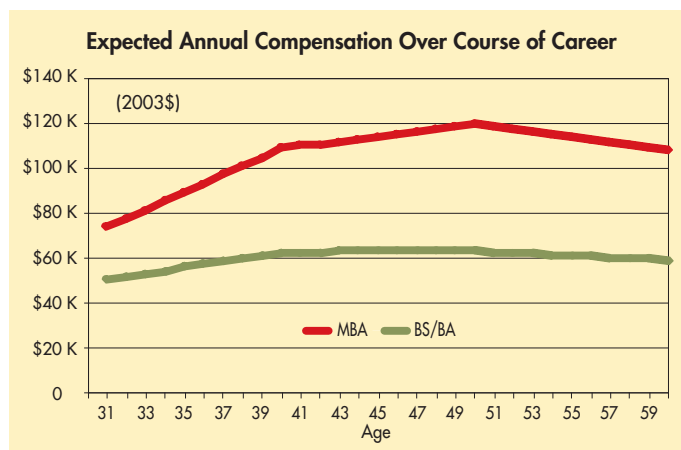
By comparison, the expected annual wage growth for workers with only undergraduate degrees has averaged just one percent more than inflation. Because of this difference in growth rates, the expected annual earnings gap between those with undergraduate degrees and those with MBAs should more than double—in real terms—over the course of their respective careers.

Long-term unemployment. Since 1970, graduates with professional degrees have experienced unemployment rates that are 25 percent less than those with undergraduate degrees, according to the Statistical Abstracts of the United States. Unemployment rates were 1.9 percent and 2.4 percent, respectively.

Likelihood of participating in the workforce. To be considered a workforce participant, an individual either must be employed or actively seeking a job. Between 1970 and 2001, 81 percent of those with professional degrees were workforce participants. By comparison, only 78 percent of those with undergraduate degrees fell into that category. Again, figures are drawn from U.S. Statistical Abstracts.

When all measures of salary and employment are considered, the value of an MBA can be quantified. Graduates with MBA degrees clearly fare better than those who have only earned BS or BA degrees.

Combining these four economic benefits makes it possible to measure the *earnings gap*, or the difference between the lifelong earnings potential of the average college graduate and a graduate with an MBA. Figure 1 shows the typical annual compensations that graduates with MBAs and bachelor’s degrees can expect to earn during their careers. Salaries are calculated from age 31 onward, as the majority of MBA students are between 28 and 34 years of age. Figures have been adjusted for the likelihood of unemployment and labor participation.



Note that, during their prime earning years, around the age of 50, those with MBAs earn about \$120,000 annually. That’s roughly twice the amount earned by their counterparts with bachelor’s degrees.

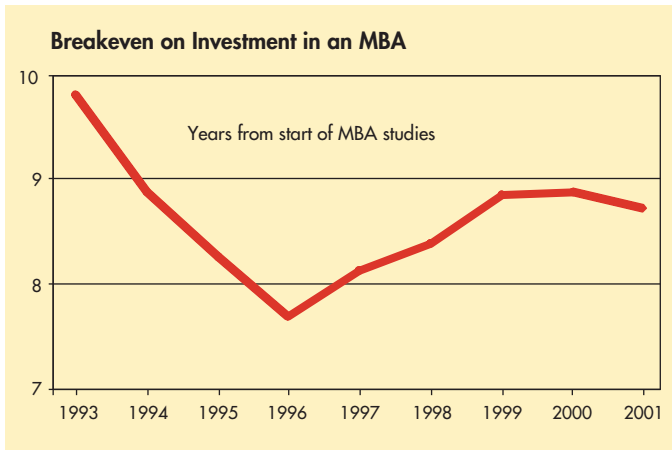
Evaluating the Investment

Any investment can be evaluated by three measures: the breakeven point, the internal rate of return, and the net present value. The *breakeven point* represents the number of years it takes for the income from an investment to pay for the investment. The *internal rate of return* is the effective interest yield that results from the investment. *Net present value* is the amount of cash-in-hand today that, if invested at current interest rates, would yield a stream of payments identical to the income generated by the investment. If we use these three measures to judge an MBA from an AACSB-accredited school, we find that the average MBA degree is an extraordinary investment—even better than it was ten years ago.

Breakeven point. In 1993, a 31-year-old who had earned a full-time MBA had invested an estimated \$124,000 in the degree—\$15,000 in tuition, plus \$109,000 in lost compensation—according to the *Annual Survey of Colleges* produced by The College Board. He could expect to pay that off in 9.8 years.

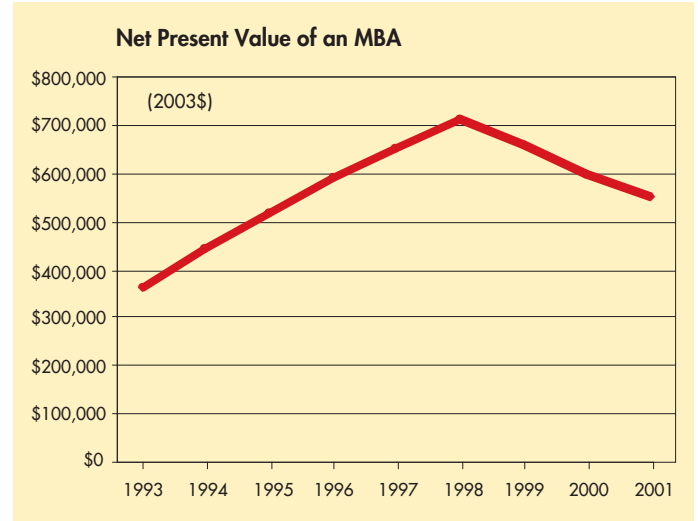
By 2001, however, the cost of the MBA had increased to \$162,000, including \$23,000 in tuition plus \$139,000 in lost wages. Nevertheless, the graduate with an MBA now could expect to earn more money more quickly, enabling him to pay off his higher debt in less time—8.7 years. Figure 2 shows that the breakeven point is getting shorter, not longer, despite rising tuition costs.

Getting a plain-vanilla MBA today is like receiving a tax-free, cash award of more than a half million dollars.

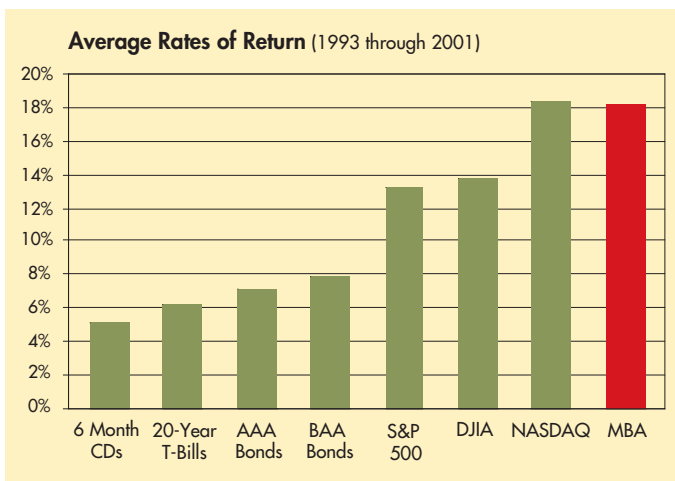


Net Present Value: To determine net present value for an MBA, look at how much it will cost a candidate in tuition and lost compensation, and subtract that figure from what the degree holder expects in increased salary over time. In 1993, a 28-year-old could determine that the probable cash-in-hand value of her MBA was \$360,000. Put another way, suppose two identical 28-year-old college graduates were contemplating their futures in 1993. One of them was given \$360,000 and entered the job market; the other started with nothing and had to pay for her own MBA. By the end of their careers, the two would be equally well-off financially. Figure 4 shows that, by 2001, the cash-in-hand value of an MBA had increased significantly, to \$550,000.

Internal Rate of Return: In 1993, the average full-time MBA student could expect that, over the course of his career, his \$124,000 investment in an MBA would yield total increased compensation of \$745,000 (in 1993 dollars). That's the equivalent of a real rate of return of 15 percent—i.e., 15 percent more than inflation. By 2001, however, the average student investing \$162,000 in an MBA could expect total increased earnings of \$1.4 million (in 2001 dollars) over the course of a career. That works out to a 17.6 percent real rate of return, or 2.6 percent more than in 1993. And this was despite a 50 percent increase in tuition.



In short, over the past decade, an MBA's average ROI has been three times the return on Treasury Bills, ten percent better than triple-A bonds, and four percent greater than the Dow Jones Industrial Average (DJIA). From 1993 through 2001, as Figure 3 shows, only the NASDAQ provided a return on investment equal to that of the plain-vanilla MBA.



Clearly, not all MBAs attain greater compensation and career benefits than their counterparts with bachelor's degrees. Still, it's even clearer that the "average" MBA fares spectacularly better than the "average" college graduate. Getting a plain-vanilla MBA today is like receiving a tax-free, cash award of more than a half million dollars.

No wonder 100,000 students are currently seeking master's degrees in business. Perhaps, unlike the critics, these candidates have done the math to determine what very real rewards they can reap by investing in their MBAs. **Z**

Antony Davies is a Research Fellow at the Mercatus Center, George Mason University, Capitol Hill Campus, and assistant professor of economics at Duquesne University in Pittsburgh, Pennsylvania. Thomas W. Cline is an associate professor at Saint Vincent College in Latrobe, Pennsylvania. This article is adapted from a lecture given to policymakers at the U.S. House of Representatives in March.

Technology

"IF YOU'RE DEALING WITH IDEAS AT A FORMATIVE LEVEL,

■ Blogs About Biz

Do you blog? If so, you're part of a small but growing number of business educators recording their thoughts on business issues in an online public forum. Short for "Web logs," blogs are online journals where writers post their thoughts to an audience of online readers. When blogs first appeared in the mid-1990s, they often were nothing more than glorified diaries. They evolved into a medium perfect for journalism, analysis, and political commentary. Today, blogs have also become a popular teaching and communication tool for academics, especially those in law and medicine.

Slowly, more business school professors are blogging as a way to communicate with students, post assignments and bibliographies, share favorite Web links, and present their thoughts on topics of the day. Martin Grace, professor of risk management and insurance at Georgia State University's Robinson College of Business in Atlanta, has kept a blog on risk management since last March at riskprof.typepad.com/tort/.

Grace admits that at first he was a bit wary of the practice for fear of posting something he might later regret. "I was wary of the publicness and permanency of it. If you wrote something idiotic, it would be there for the whole world to see," says Grace. "I also worried about spelling and grammatical errors. I know newspaper reporters do this all the time—but they have editors!" Such concerns may be one reason why blogging has been slow to catch on among business professors. In addition, they may not believe their work to be as "exciting" as law or medicine, so they may think they have nothing to "blog" about, Grace says.

"I also have a law degree, so I started by reading blogs by lawyers and economists, who have a lot to say about the public policy issues of the day," says Grace. "Business professors, on the other hand, are talking about whether it makes good sense for this firm to make that investment. It may seem less exciting than a topic like civil unions."

James Garven, professor of finance and insurance at the Hankamer School of Business at Baylor University in Waco, Texas, keeps a blog at www.finweb.com. Also an avid blog reader, Garven subscribes to the blogs of several law and economics professors and has discovered that bloggers generally run in three categories—those who want to teach and inform, those who want to stimulate discussion, and those who want to keep a record of their own

thoughts and research. "If you're dealing with ideas at a formative level, writing about them regularly helps you put the pieces of the puzzle together," Garven says.

Starting a blog can be fairly painless, even for the technologically uninitiated. If you can type, you can blog, say these bloggers. Blogging software can often be downloaded online—inexpensively or even for free. Many academics use software such as Movable Type, a program available at www.movabletype.org. An older version of the software is available for free; the newest version, Movable Type 3.1, is available to educators for \$39.95 and includes tech support. Users can download the program to create a blog on their universities' Web servers; or they can use the company's TypePad service to place a blog on Movable Type's central server.

TOOLS OF THE TRADE

Outblaze-EDU: E-mail Messaging for the Education Market

In only a decade, e-mail has gone from optional novelty to ubiquitous utility. With this ubiquity, however, companies must manage the billions of e-mails sent globally each day, while stopping viruses; keeping their systems safe from hackers; and thwarting spammers, who purportedly send more than 50 percent of all e-mail.

Outblaze, a company headquartered in Hong Kong with a U.S. office in Stamford, Connecticut, and offices in China, Korea, India, and the Philippines, recently launched an e-mail platform designed for the education market. Outblaze-EDU provides students and faculty with anytime-anywhere access to e-mail, online calendars, file sharing, and

message board services. In addition, it provides security features such as anti-spam, anti-virus, anti-piracy, and content-filtering.

Higher education has different needs than business, says Stef Bensi, managing director for Outblaze USA. "When employees leave a company, it just





WRITING ABOUT THEM REGULARLY HELPS YOU PUT THE PIECES OF THE PUZZLE TOGETHER.” —James Garven, Baylor University

city’s Kelley School of Business in Bloomington, Rasmussen has kept a blog since May 2003 at www.rasmussen.org. Unlike Grace, he had no compunctions about blogging—even though an August 2003 blog entry he posted on homosexuality garnered him negative attention from university administrators.

“Free discussion is important to scholarship, so I never let my pride or fear of

being wrong stop me,” says Rasmussen. “But I write my blog for myself as much as for anyone else. I view it as a record of ideas, facts, and links I find useful—a record I’m willing to let others see.”

Still, the fact that blogs are so public is also their most significant

Obviously, faculty bloggers should be careful about what they post. Because blogs are public, faculty who post controversial opinions or criticism of their universities do so at their own risk, as Eric Rasmussen discovered. A professor of economics and public policy at Indiana Univer-

shuts down their accounts,” Bensi says. “But universities want to provide e-mail services to alumni on a long-term basis for networking and fund-raising purposes.” So, a business school with 5,000 students and 30,000 alumni may provide 35,000 e-mail accounts this year. In two years, that number grows to 40,000 accounts, and, in another ten, to 65,000 or more.

“Over time, a university has a buildup of accounts,” says Bensi. “Any expansion involves increased hardware, maintenance, and data storage costs. Universities, especially those using systems developed internally, don’t always have the technological resources to continue to keep their systems up-to-date.”

Outsourcing e-mail services that are compatible with a university’s

Web portal and servers from a third party can be a lower-cost option, he says. For instance, an internal e-mail system may cost a university \$1 to \$2 per user per month, while an outsourced system can reduce that cost to less than \$1.

Founded in 1998, Outblaze currently handles more than 200 million e-mails for 35 million users daily for companies such as Verizon, Dell, and LinuxMail.org. To enter the education market, says Bensi, “Outblaze has the scale to easily add and subtract hundreds of thousands of email accounts for schools each semester, implement the newest technologies at the lowest cost, and monitor the network for dangerous or inappropriate e-mail.”

For more information on Outblaze, visit www.outblaze.com.

benefit. Faculty bloggers receive comments not only from students and other faculty, but from others interested in their ideas. In this way, professors can use blogs to educate the public about business and as catalysts for their own research. Because blog readers, as a group, tend to be less critical than formal peer review panels, blogging offers professors an open forum to test out ideas before pursuing them further.

Well-read blogs also provide valuable exposure to academics, says Grace. “Our external affairs staff is

always trying to get our professors’ names into newspaper articles,” he says. “This is a way to get the name of the university in front of people.”

For any business professor new to blogging, Rasmussen and Grace have some advice. First, says Rasmussen, decide

what kind of blogger to be. “Business bloggers should decide whether they are (a) taking notes for themselves, (b) writing a regular journal on topics of the day, or (c) writing an irregular posting of ideas and facts on topics of lasting interest.”

Finally, if they want their blog to be a destination for readers, academics should choose a specialty to better create a blog that inspires other people to respond, says Grace. “It may take a while to find a niche, but it’s important to find a specialty and stake out your territory,” Grace advises. “Just like in business, market yourself.”

DATABIT

According to Forrester Research, based in Cambridge, Massachusetts, there will be an upsurge in the offshoring of U.S. jobs in the next year. It estimates that **830,000** jobs will leave the U.S. in 2005, a **40 percent** increase over its previous estimate. In the long term, the company estimates that **3.4 million** jobs will go offshore by 2015.

Conquering the Wireless Challenge

How does a business school jump fully into wireless networking? Administrators at the Johnson Graduate School of Management at Cornell University in Ithaca, New York, think they have the answers. Since they fully integrated a wireless local area network (WLAN) technology with the university's existing network of wired and wireless technologies provided by Cisco Systems Inc., they say they have lessons to share.

"Wireless on a school campus has moved beyond the 'tipping point,'" says Kevin Baradet, chief technology officer at the Johnson School. Unlike a typical technology adoption curve, which is slow and steady, the "big bang" of wireless chips preinstalled on laptops resulted in a significant critical mass of students and faculty requiring wireless access, he says. "I think this time last year, all the top business schools were surprised by how fast students shifted from wired to wireless technology," Baradet says. "In May 2003, our students were carrying drop cables and plugging into wire ports. By December 2003, nobody had them or wanted to use them."

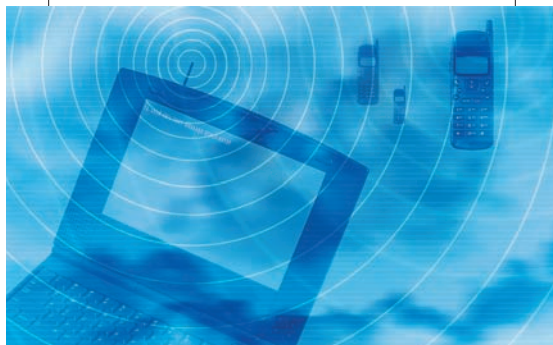
As a result, the Johnson School spent last year "catching up" to students, says Baradet, but now the school is ready to go. To complete its own transition from wired to wireless, the school used BeaconWorks WLAN, a product of Boston-based Chantry Networks. Before a full roll-out of a wireless community, however, Baradet notes that any business school should address a few key issues:

Understand user needs. The latest laptops and handheld devices often need tweaking to access the network.

Therefore, a business school should ensure that its help desk is appropriately staffed and prepared at the beginning of each semester for a flood of new users needing support.

Cut the cords. Few students come to business school expecting to "plug in" to a network. Installing ports should no longer be a priority.

Include enough access points. Any large-scale deployment requires access points that provide a great coverage area, but those points are inexpensive to install and maintain, says Baradet.



A state-of-the-art wireless network needs to operate with the same quality of service of a wired network. It should not resemble a cellular network which often has gaps in coverage. The Johnson School, for example, has 32 access points, which can handle 1,000 simultaneous users checking e-mail or doing light Web surfing. At peak times, the network handles around 300 simultaneous users.

Pay attention to building materials. The concrete in older buildings can block signals. Access points must be numerous enough to circumvent these obstacles and provide full coverage.

Develop networks collaboratively. Successful wireless networks are developed using a collaborative, rather than a top-down, process. Provide a liaison who will hear and voice the requirements of users throughout the

transition. Only by including all users in the process can a school ensure satisfied users and smooth deployment.

Accommodate peak work times. A wireless network should have enough capacity to accommodate an academic community's peak traffic times. For corporations, this time is roughly 9 a.m. to 5 p.m.; however, a university population works differently. At the Johnson School, peak times happen between 12 p.m. and 2 p.m., and between 7 p.m. and 2 a.m.

Consider additional features. A wireless LAN alone may not meet a business school's needs. For example, professors may want to limit students' usage of wireless devices during classes. A wireless solution that provides separate networks to faculty gives them additional control in the classroom.

Integrate with current technology.

No business school should build a wireless network from scratch, or be required to endure massive upgrades when technology changes. It's wise to choose a solution compatible with past and future technology.

Develop a partnership with vendors.

Chantry Networks is still heavily involved with the evolution of the Johnson School's wireless network, says Baradet, which will make the school's transition to future technology more seamless. The company also benefits from an ongoing partnership, he adds.

"We've become a development partner for its product," Baradet says. "We've given the company a lot of feedback and are essentially a testing lab. Chantry's staff see things happening here that they couldn't imagine or create in their own testing environment. So, they gain the knowledge to make the product even better."

SUCCESS
(suc*cess")

[n. The accomplishment of goals necessary to achieve a particular task, realize a particular dream or satisfy a particular need or want. The outcome of effort. From the Latin *successus*—to succeed.]

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INNOVATION IS OUR TRADITION

Teaching Ethical Hacking

Computer hackers, who seek out vulnerabilities in computer systems to harvest valuable data such as credit card information, are believed to cost global business billions of dollars annually. A recent study by Good Harbor Consulting, a firm based in Virginia, found that corporations now spend up to 12 percent of their technology budgets on security, up from 3 percent only five years ago.

In response to this trend, some graduate students at the University of North Carolina at Charlotte want to learn to beat hackers at their own game. In a course called Vulnerability Assessment and System Assurance, offered through UNCC's College of Information Sciences, students will learn how to defend and secure a computer net-

DATABIT

Cybersecurity is becoming a big business. In a recent study, Computer Security Institute (CSI) projects that the number of jobs in cybersecurity will grow at an annual compounded rate of 14 percent until 2008. It also estimates that by 2008 the number of cybersecurity professionals will be 2.1 million, up from today's 1.3 million.

work. They will also learn the secrets to hacking into almost any system from some of the most talented—and benevolent—hackers in the world. As “ethical hackers,” students also will learn the legal and ethical considerations that arise in cybersecurity.

The course is modeled after programs offered primarily by military institutes, says Bill Chu, the professor of information technology leading the course. “This particular

course will expose our students to dark-side techniques. They'll gain insight on how bad guys can penetrate systems and they'll learn how to effectively protect those systems,” says Chu. “We're teaching them to think like the bad guys. They're learning a different mindset.”

The course follows a case-study format and includes a strong lab com-

ponent. In addition, students must sign a legal agreement, which states that they will not misuse or reveal any of the tactics they learn.

As “white hat” hackers, these students may perform a valuable service to industry. Companies are paying such hackers to examine their systems and identify any security weaknesses before “black hat” hackers have a chance to access sensitive information.

Making Dot-Coms History

Researchers at the University of Maryland's Robert H. Smith School of Business in College Park have received a \$235,000 award from the U.S. Library of Congress. The goal is to strengthen a two-year-old initiative to preserve records from the now-historic dot-com era of the late 1990s. The award will be supplemented by \$245,000 in contributions from the project's partners, which include the Center for History and New Media at George Mason University in Fair-



fax, Virginia (www.chnm.gmu.edu); digital library Internet Archive of San Francisco, California (www.archive.org); and computer forensics firm Gallivan, Gallivan & O'Melia of Seattle, Washington (www.digitalwar.room.com).

The Smith School will use the funds to develop a digital repository to house business records and other materials collected through the Business Plan Archive (BPA), which was launched in 2002. On its Web site businessplanarchive.org, the BPA contains venture presentations; business, marketing, and technical plans; and other documents from more than 2,000 failed and successful Internet startups.

Some estimates suggest that nearly 30 percent of all business records produced today never touch paper. As a result, recording business history requires the active preservation of digitally produced materials. "The need to save these materials is evident," said David Kirsch, the project's lead researcher and assistant professor of entrepreneurship at the Smith School. "Our team will help us figure out what can be saved, what should be saved, and exactly how best to do it."

In the second phase of the BPA project, researchers will collect detailed personal narratives from those who were directly affected by the Internet boom and bust. Entrepreneurs, employees, customers, suppliers, investors, and others can complete a survey at www.dotcom.archive.org, the BPA's companion Web portal.

The official name of the Library of Congress program is the National Digital Information Infrastructure and Preservation Program. More information about NDIIPP is available at www.digitalpreservation.gov.

■ iPods Come to Campus

Laptops, PDAs, and mobile phones have become fixtures on most campuses, serving as important conduits of educational and administrative content for faculty and administration. But should the Apple iPod be added to that list? Better known as a tool for the music industry than for education, the device is a standard gadget for this year's freshmen at Duke University in Durham, North Carolina. Last fall, about 1,800 Mac- and PC-compatible iPods were distributed to freshmen and other university staff.

The iPod project is part of a pilot program between Duke and Apple Computer that will be evaluated after a year. The cost of the project is estimated to reach at least \$500,000 and will be covered by strategic planning funds that the university has set aside for one-time innovative technology purposes. Students can use their iPods to listen to foreign language exercises, review recorded lectures, take verbal notes, or record interviews. Campus publications could also use the medium to distribute audio editorial for students.

"We're approaching this as an experiment, one we hope will motivate our faculty and students to think creatively about using digital audio content and a mobile computing environment to advance educational goals," says Tracy Futhey, Duke's vice president for information technology and chief information officer.

Could the iPod make its way to the business school? It's not yet in the

plans for Duke's Fuqua School of Business, says Nevin Fouts, associate dean of information technology. Still, Fuqua's IT department is watching the iPod program with interest as

it looks for ways to leverage next-generation devices, he says.

"We meet regularly with a student technology advisory council of handpicked MBA students who work with us to develop Fuqua's technology environment. We've also been working with companies to help us find useful technology that goes beyond laptops and handheld computers," says Fouts. "We're trying to find the right technology to extend the MBA experience in a very transparent way."

NEWSBYTES

■ .EU DOMAIN COMING SOON

The long awaited ".eu" domain, for companies that want to incorporate their affiliation with the European Union in their Web addresses, will be available in 2005. During an initial two-month "sunrise" period, only companies in the 25 EU countries that own registered trademarks on their names will be allowed to register their addresses. This measure has been taken to



thwart "cybersquatters," who register Web addresses using well-known names of companies or individuals and then attempt to sell them back to the trademark holder, often at exorbitant prices. After the sunrise period, any EU resident or company can register a domain name with the .eu suffix.



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■ VIRTUAL CAREER GUIDANCE

EM LYON, a business school located in Ecully, France, recently launched its Career Centre, which integrates EM LYON's virtual campus and software from Quebec-based Technomedia. The Career Centre offers a three-stage process. First, students use online self-assessment tools, including a 360-degree assessment and personality testing tools. Second, students move on to training tools that teach them how to work with recruiters, look for a job in a global market, research a company, and write a resume and cover letter. Finally, students can access a network of personal development professors and career professionals. EM LYON's Career Centre

is now available for its bachelors- and masters-level students, and eventually will be extended to all EM LYON graduates.

■ LAPTOP DAY AT ST. JOHN'S

Last semester, St. John's University distributed close to 3,700 laptops to entering freshmen. Although this

was the second year of laptop distribution, it was the first after the expansion of the school's wireless computer network to cover all indoor and outdoor areas of its campuses in Queens, Staten Island, Manhattan, and Oakdale, New York, as well as its campus in Rome, Italy. With last year's contingent of 3,400 laptops already in use, more than 7,000 stu-

dents and faculty can access the wireless network from any point on its five campuses.

■ GOING AFTER GOOGLE

Although Microsoft is a dominant force in software technology, there's one area where it lags behind: search engines. Microsoft mogul Bill Gates has announced the company will soon launch a search engine to give the current search engine leader Google, a run for its market share.



Microsoft's new search engine will initially search 5 billion indexed Web pages. In a preemptive strike, Google has doubled its capacity to 8 billion pages. Google presently holds 36.1 percent of the market; Yahoo, 30.6 percent; and Microsoft, 14.4 percent, according to the U.K.'s *The Daily Telegraph*. **Z**

DATABIT

Reuters reports that the city-wide wireless network planned for Taipei, Taiwan, will be able to accommodate the city's 2.6 million residents, include up to 20,000 access points, and cost \$70 million. The network is being built by Taiwan's Q-Ware Corp. with help from HP, Intel, Microsoft, and Cisco, and is scheduled to be operational by the end of this year.

Your Turn

by Margaret Ruggieri

From Chalkboard to SMART Board—and Back

Before I leave my office every morning to impart accounting knowledge to eager young minds, I go through my mental checklist to make sure I haven't forgotten anything: thumb drive with PowerPoint presentation, remote mouse, transparencies. I make sure I have hard copies of the presentation for student distribution, textbook, lecture notes, attendance sheet, and last but not least, chalk.

Chalk? Yes, chalk. This professor finds that, even with so many high-tech tricks in her bag (and these days that bag gets pretty darn heavy), some low-tech tricks are still relevant to effective teaching and successful learning—and sometimes, they're even necessary.

To set the record straight, I'm not opposed to advances in technology. Rather, I embrace them. I try to take advantage of any opportunity to learn a new software application or technique that has the potential to enhance student learning. For example, my remote mouse allows me to move around the classroom while lecturing, giving the class more "action." PowerPoint slides allow me to make more efficient use of class time and give lectures that are not only easier to follow, but also more interesting for students. In fact, during the first semester I used PowerPoint, I received unsolicited positive comments from more than 50 percent of my students. They liked that I provided them hard copies of the slides, which allowed them to take notes easily and pay closer attention, and that I posted an

electronic copy of the slides to Angel, our school's course management system, for later review.

The reality is that attempting to excite, motivate, and engage young minds in the world of accounting can be a daunting task. The fact that most of today's students have been raised on video games, MTV, and cell phones makes the job downright intimidating. Of course, our role as educators isn't to entertain, but I've found that the more exciting the



Margaret Ruggieri

classroom experience, the more focused the students are and the better they grasp complex material. Thus, using technology in the classroom keeps everyone awake and interested.

But as with most things in life, too much of a good thing runs the risk of becoming boring. Technology attracts the most attention when it's new. What happens when the technology itself becomes old hat? Or worse, an obstacle to learning?

Take the SMART Board, the electronic chalkboard (minus the white dust) that allows you to "save" all the material you've erased. This tool works well in the classroom and it's fun to use. But it has some limitations. First, it's often not large enough to display all the necessary material—say, all the steps to a complex accounting problem. Second, I'm a visual teacher, and I like to have my PowerPoint slides visible as I demonstrate a problem

AS WITH MOST THINGS IN LIFE, TOO MUCH OF A GOOD THING RUNS THE RISK OF BECOMING BORING. TECHNOLOGY ATTRACTS THE MOST ATTENTION WHEN IT'S NEW. WHAT HAPPENS WHEN THE TECHNOLOGY ITSELF BECOMES OLD HAT? OR WORSE, AN OBSTACLE TO LEARNING?

on the blackboard—not possible when switching between PowerPoint and the SMART Board. Third, I often don't need to save the material at all, since I like to start fresh with each class so the students can build the solution themselves. For this professor, the SMART Board isn't always quite smart enough!

Or consider the range of electronic review materials we now have available. An essential component to

most accounting courses is a review of homework problems to reinforce the covered material. Electronic solutions that publishers provide are an easy way to provide answer keys to students, especially with course management software such as Angel, WebCT, or Blackboard. But what works best in the actual classroom?

My experience has been that electronic solutions cannot be enlarged enough for classroom use—if any student beyond the front row wants to see them, he needs a pair of binoculars. I can zoom in, but then only a portion of the solution can be seen, which wreaks havoc on explaining more complex problems.

So I go back a technological generation. Solution transparencies work well, since enlarging the entire problem merely requires moving the cart with the overhead projector up the aisle. Such a low-tech solution benefits not only my front-row students, but also any sleeping beauty in the back of the class.

I don't disagree that technology has become an indispensable addition to the classroom. But what happens the day I walk into the high-tech classroom with thumb drive and remote mouse in hand, ready to deliver a chapter's worth of material, and the classroom computer isn't functioning or the keyboard battery is dead? Or the day my students are just in the mood for something different they haven't seen in a while?

These are the days I'm glad I packed my entire bag of tricks. I go back to first-generation teaching technology and pull out that old reliable piece of chalk. **Z**

Margaret Ruggieri is an assistant professor of accountancy at Providence College in Providence, Rhode Island.



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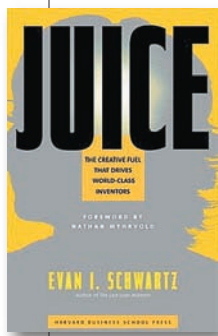


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THE AMERICAN DREAM STILL WORKS.

Bookshelf

Inventors are odd people, but not just because they wear big glasses and plastic pocket protectors and spend all day tinkering in their basements. No, inventors are odd because their



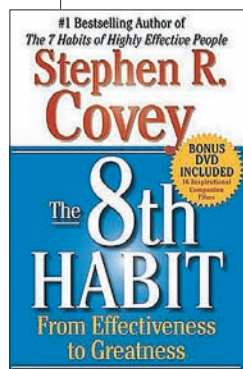
minds are constantly teasing at problems. In *Juice*, Evan I. Schwartz picks through the brains of dozens of inventors, from famous ones like Alexander Graham Bell to lesser-known individuals like Jay Walker,

who came up with Priceline.com. Inventors are driven by a Jungian instinct to play—an almost irresistible desire to take things apart and put them together in a new way—and yet their inventions will be meaningless unless they focus on problems that actually need solutions in markets that can bear innovation. While inventors are a special breed, it's not just mad geniuses who can come up with great ideas. "Invention is a set of strategic thinking tools that you can teach, learn, and practice," writes Schwartz. Modern-day inventors have largely been subsumed into R&D departments, Schwartz notes. "In 1940, the U.S. Census Bureau actually eliminated 'inventor' as a separate job category." But more than a few individuals know that the position still exists. (Harvard Business School Press, \$24.95)

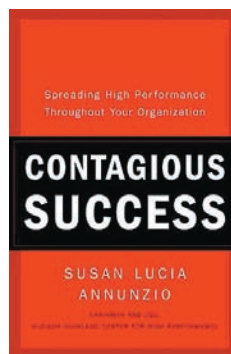
"Treating people well makes money," says Susan Lucia Annunzio in *Contagious Success*. She's not the first person to think so, but she might be one of the first to have empirical proof. Drawing results from a survey of thou-

sands of elite employees at companies around the world, Annunzio describes the ideal workplace for high-performing work groups: one that values people, optimizes critical thinking, and is open to seizing opportunities. These high-caliber workers perform best in a specific environment in which a high paycheck is not the most important factor to employee happiness; in fact, it's ranked fifth after satisfaction with the company's values, teamwork, people, and planning. Annunzio offers case studies of work groups that have performed at high levels, as well as detailed information about her survey. Any team leader should pay heed. (Sentinel, \$24.95)

Stephen R. Covey, author of the best-selling book *The 7 Habits of Highly Effective People*, is back with an addendum: *The 8th Habit*. Taking a hard look at the knowledge economy, and the paradigm shift necessary to harness the full productivity of the modern employee, he offers a treatise that is alternately thoughtful, inspirational, and uncompromising. "The Knowledge Worker Age will eventually bring about a downsizing of up to 90 percent of the Industrial Age

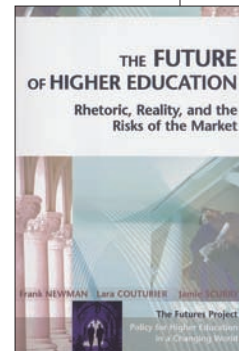


workforce," Covey predicts. But neither management nor the workforce has yet figured out the best way to engage that knowledge worker, who wants a job that will satisfy his body, mind, heart, and spirit. Covey's



eighth habit is really an exhortation to every individual: *Find your voice and inspire others to find theirs*. That habit, whether developed at home, in the office, or in any other setting, will create a passionate worker committed to a full life—and extraordinary productivity. (Free Press, \$26)

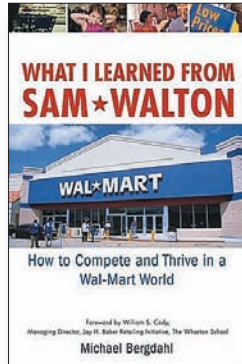
Everyone has an opinion about the forces shaping higher education, but Frank Newman, Lara Couturier, and Jamie Scurry are more qualified than most to offer theirs. They are all involved with the Futures Project: Policy for Higher Education in a Changing World, a think tank based at Brown University. In *The Future of Higher Education*, they lay



out some of the market forces shaping the university system, from privatization to globalization to sweeping technological innovations. The biggest factor, however, is the gradual shift to a market mindset for colleges and universities, as they compete for students, rankings, and prestige. The result is that both schools and state governments will need to rethink their policies about education and how it is offered. State leaders need control of two factors, the authors write: "mission and a range of workable means of assessing institutional performance." According to them, "What institutional leaders need is greater autonomy in the operation of the institution to fulfill the agreed-upon mission." Many of the ideas will be familiar to anyone anxious about the state of higher education, but that does not make them any less forceful. (Jossey-Bass, \$33)

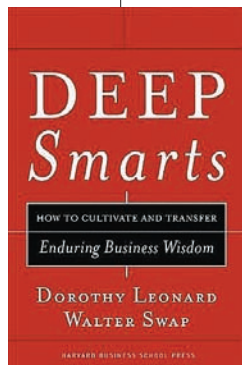
■ **“How fast do you read?”**

Depending on your answer, by the time you finish this book, Wal-Mart will have opened one, two, three or more stores.” That’s just one of the nuggets contained in *What I Learned From Sam*



Walton, written by former Wal-Mart executive Michael Bergdahl. But Bergdahl isn’t interested in merely wowing readers with facts about Wal-Mart’s juggernaut success. He wants to offer potential Wal-Mart competitors concrete advice about how to compete with the retail giant. He’s devised a strategy for “picking Wal-Mart’s pockets,” which, conveniently, spells the word POCKETS. Readers come to understand Wal-Mart strategies on price, operations, culture, key item promotion, expenses, talent, and service. The chapter on pricing, for instance, details Wal-Mart’s commitment to rock-bottom prices and then states point-blank that no one can compete with the company head-to-head on pricing. “The key is to find a niche ... within your area of expertise, with products and services not offered by Wal-Mart.” It’s a great read for anyone interested in how Wal-Mart has reshaped the landscape of retailing. (Wiley, \$24.95)

■ **Through what combination of experience and innate intelligence do people develop the skills and knowledge to be excellent leaders?** Dorothy Leonard and Walter Swap call that kind of knowledge *Deep Smarts* and have written a book about the process of acquiring it. They studied



Internet entrepreneurs—who compressed a whole life cycle of learning, success, and failure into a span of a couple of years—as well as veterans of long-established organizations such as The World Bank and Jet Propulsion Laboratory. Although some of their conclusions are obvious—experience is the best teacher, for example—the questions they ask are thought-provoking. While we know experience matters, they write, do we appreciate its importance in “designing our own careers, in managing the careers of others, or in building and retaining deep smarts within our organizations?” (Harvard Business School Press, \$29.95)

■ **In today’s highly differentiated world, it’s virtually impossible to sell the same product to everybody.** There are too many markets, too many competitors, and too many customers with specialized needs. But how does a CEO determine who his customers are and how to find them? Art Weinstein provides a guide in *Handbook of Market Segmentation*, which focuses on the high-tech and industrial markets. Weinstein demonstrates how executives can zero in on their niche markets by considering geographic location and product lines while determining if a market is penetrated, untapped, generic, or relevant. Too many firms “still base their marketing plans on cursory, incomplete, or intuitive market analysis,” he writes. What’s required, he says, is the sound planning and

research that lead to strategic segmentation. (Haworth Press, \$19.96)

■ **Every aging population views members of the upcoming generation with a low-level dread, believing they cannot be as hard-working, passionate, or collaborative as their own contemporaries.** So it’s no surprise that baby boomers look with horror on the video gamers just now muscling their way into the workforce. After years of sitting numbly before computer screens immersed in violent fantasy worlds, what could gamers have to offer to the workforce? Plenty, according to John C. Beck and Mitchell Wade in *Got Game*. They conducted interviews with thousands of business professionals, men and women, who were gamers as teenagers, to determine if the video gaming experience changed their attitudes and expectations about work. The answer is: absolutely—and often in a positive way. Gamers are confident, competitive, high-performing, multitasking, and at least as social as nongamers. Playing self-centered games in which they are called upon to do heroic tasks leads them to appreciate “facing a challenge with real teeth, where the reward is partly in service to some larger cause.” Why is it important to understand what motivates former gamers? Because, according to the authors, they make up 81 percent of the workforce of people 34 years old or younger, a huge portion of today’s employees. (Harvard Business School Press, \$27.50) **Z**



Spotlight

I Building on a Rich History

College of Business and
Information Science
Tuskegee University
Tuskegee, Alabama

When Booker T. Washington founded Tuskegee University in 1881 as the Tuskegee Normal and Industrial Institute, its purpose was to train newly freed slaves as teachers. Washington wanted its students to become intellectually stimulated and return to their communities to educate others. As one of the historically black colleges and universities (HBCUs), Tuskegee created its first department of business in 1962; that department became a college in 1984 and received AACSB accreditation in 1998.

Today, the school's College of Business and Information Science (CBIS) serves approximately 450 undergraduate students, including 360 business majors and 90 computer science majors. The CBIS offers eight majors in accounting, business administration, economics, finance, management science, sales and marketing, hospitality management, and computer science. Bringing together principles of business and technology is at the forefront of the school's mission, says Alicia Jackson, dean of the college. "So many businesses are growing around the area of technology and biotechnology," she says. "We wanted to combine the two programs."

Among the college's core programs, its sales and marketing program is unique, says Jackson, because it does not isolate the marketing major as its own discipline. "Our



Above left: a TU campus landmark. Above: undergraduate business students at Tuskegee's CBIS. Left: Dean Alicia Jackson.

marketing department is specifically designed to produce professional salespersons, so the major focuses on the sales function and customer relationship management," she explains. The school is also steadily growing its hospitality management program. Students in the program train at Tuskegee's Kellogg Conference Center, which school representatives say is the only such luxury hotel facility located at an HBCU.

In its effort to integrate disciplines, the school hosts its annual Tuskegee University Business and Engineering Conference, which is staged entirely by business and engineering students. The objective, says Jackson, is "to show how the two processes work together, so that business students learn principles of engineering and engineering students learn principles of business." This year, for example, aerospace company Raytheon gave students a special challenge: Put a robot together from its components, according to customer specifications. As a result, the students learned there was more than one way to approach such a project. "The engineers wanted to put it together, but not necessarily



according to the customer specifications," says Jackson. "The business students stepped in to say, 'No, *this* is what the customer wants.'"

CBIS also hosts the annual Booker T. Washington Economic Development Summit, which brings together representatives from the business school, government, community, and professional groups. Speakers offer information to small business owners to foster entrepreneurship in the local community.

Going forward, steady growth is at the top of the school's agenda. The school wants to add majors in management of information science and supply chain management. In addition, the business school is currently raising funds for a new facility, a goal aided by a \$2 million gift from Procter & Gamble. Estimated to cost \$12 million, the new building will boast 45,000 square feet and bear the P&G name.

Most important, Jackson wants to see her business school gain greater recognition beyond its local region. "It's difficult for a small school to gain national recognition, but this is a goal I've shared with the faculty," she says. "I know how great this school is—now it's a matter of letting the world know." **Z**