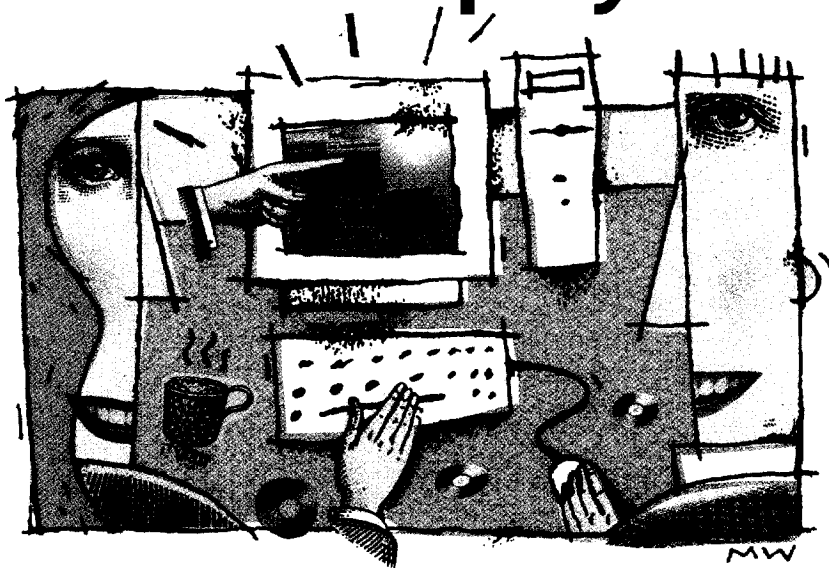► BY JENNY C. McCUNE

The Call for TECH-SAVVY Employees

Decision making and innovation in all fields increasingly require tech-savvy professionals.

Companies have dealt with the shortage of technology professionals since the dawn of this decade. But as they head into the next millennium, they're also facing a more subtle, and more intractable, problem: how to find nontechnical professionals who are conversant enough with technology to wield it as a competitive weapon.

It's not that the problem isn't recognized. Haven't you ever thought to yourself, "I wish my staff were *just* a bit more tech-savvy"? It's a question of what needs to be done about it and who should be responsible—you as a department head, the training department, the HR function or IT.

Certainly, companies recognize that there's a crying need for employees to know more about technology. In 1997, U.S. companies spent 12 percent of their training budgets on teaching computer skills to employees, according to the American Society for Training and Development (ASTD). That same year, computer skills training was voted the "top trend" in an executive survey by ASTD.

Much of that training, however, is bare-bones, covering basics such as how to use a spreadsheet program or send an e-mail message. What I'm talking about is integrating technology know-how with the way you and your subordinates work.

Over the years, the need to integrate technology into decision making has increased. Technology has implications in just about every discipline. Your competitor's ramping up of a new enterprise resource planning program can make it a much more formidable rival, just as your company's data warehousing efforts can help it rise to the top in its industry. The problem is, a lot of companies still can't get their arms around technology and its potential effects on business performance. So it's not just an issue of using computers to boost productivity and efficiency. It's about sustaining long-term growth.

"What drives sales growth is innovation, and for the most part innovation is driven by technological change, so we all need to know about technology," says Joe Keithley of Keithley Instruments Inc., a manufacturer of electrical measuring instruments based in Cleveland, Ohio.

LEARNING THE BASICS

Today's education is too separatist. If you're a liberal arts major, you read T.S. Eliot, not "How to Write a Web Page." Fortunately, universities have begun to recognize the issue and offer core technology courses for nontechnical majors.

There are two levels of technology knowledge that people need to learn—basic and strategic. The primary level is the nuts-and-bolts stuff that just about every employee must possess. It's what Seth Harris, vice president and principal of executive recruiter Christian & Timbers, based in its Burlington, Massachusetts, office, calls "productivity" knowledge—the ability to use everyday technology tools such as corporate e-mail systems, word processing programs, spreadsheet applications, desktop publishing software, computerized presentation tools or database programs. All of these basic applications increase productivity. "If you don't have the basics, you'll be seen as a dinosaur and terribly out of date," Harris says.

One academic institution—Bentley College of Waltham, Massachusetts—is offering what it calls an "Information Age MBA," which integrates business learning with training on how to use applications pertinent to your specific discipline, whether it be finance or operations.

"The Information Age has created a demand for business school graduates who understand the impact of access to essentially unlimited computing power, ubiquitous communications and voluminous data about markets and customers," says Joe Morone, president of Bentley College. "The future is not just accounting, it's accounting information systems; not just law, but cyberlaw; not traditional marketing, but high-tech marketing."

At Arizona State University in Tempe, the School of Accountancy and Information Management now teaches a course on how to use decision support software. Ajay Vinze, associate professor of information systems, says: "[Students] get their hands dirty using the technology while retaining a business decision-maker per-

spective. What is difficult is not the technology, but understanding it in context."

The goal of such computer-related courses? Not to turn business students into technologists, Vinze says, but to turn them into decision makers who can use technology efficiently and effectively.

So, for nontechnical professionals, the challenge is to learn how to use the best tools available to do their job in finance, HR, marketing or any other area. Preferably this learning should happen while people are in college, so they don't waste time in business with more book learning. The emergence of MBA programs that offer courses on how to apply technology to various business disciplines should help these nontechnical professionals acquire the skills they need. I think this is a step in the right direction. I just wish it had happened sooner, as most of these programs are newly minted and it will be a while before their graduates move into the business world.

STRATEGIC KNOWLEDGE

In addition to understanding technology as a productivity tool, managers also need strategic knowledge. They need to know enough about technology to be able to exploit it in solving business problems—and make sure they don't get broadsided when a competitor does the same.

"You don't need to be a programmer, but you do need to know how to harness the powers of technology for strategic purposes," explains Cathie Decker, director of MBA Career Services at the University of Iowa in Iowa City.

It's harder to teach how to *think* strategically about technology than simply how to *wield* it. It may be harder, but it's also crucial to your company's success. "Five years ago, it was something to leverage, it was a benefit. Now such knowledge is a fundamental requirement to know how technology can make your company more efficient and more competitive," says Geoff Champion, manager of the advanced technology practice at Korn/Ferry International in Redwood City, California.

HOT CAREERS
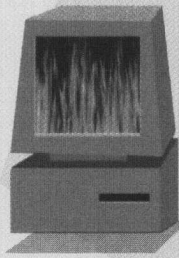
Executive search firm Christian & Timbers compiles a list of hot jobs every year. It's no surprise that the 1999 list is dominated by technology. A full eight of the top 10 positions involve technology, and the positions require strategic business skills. Based on its analysis, Christian & Timbers predicts the following increases in demand in 1999:

POSITION	% INCREASE
E-commerce CFO	158%
Internet CEO	133%
Chief Technology Officer	119%
VP, E-commerce	108%
M&A Investment Banker	87%
Y2K Consultant	82%
VP, Online Community	76%
CEO, Network Integration Services	61%
VP, Data Warehousing	58%
New Generation VP of HR	51%

The reason it's difficult to impart such knowledge is that people learn how to exploit technology through experience. It's knowledge acquired in the trenches, not school-book learning, Champion says. He cites Jeffery Bezos, founder of Amazom.com, as an example of someone who's combined technical knowledge with business smarts.

Bezos studied physics and computers at Princeton University and applied those disciplines at D.E. Shaw & Co., an investment firm where he became a quantitative hedge-fund manager and the firm's youngest senior vice president. He changed the way the company conducted statistical arbitrage by skillfully pairing man with machine. Now he's doing the same thing at Amazon.com. He saw the Internet as a sales channel long before many more established businesses did. "It's how to harness and exploit it," Champion says.

That's why a lot of management crossover is occurring among different industries as companies struggle to get the right mixture of skills. Cross-pollination is often necessary because Internet startups are long on tech know-how, but short on general business expertise, whereas more established companies have the opposite

problem. To cross-pollinate, hire outside your industry to get the knowledge your company requires.

Beyond that, other steps will help integrate technology with business knowledge. Some of these solutions must come from the individual manager; others are more companywide initiatives. All are good ways to strike the right balance:

● At a corporate or departmental level, provide employees with education opportunities. Reimburse or subsidize efforts to become technology literate, whether it means taking a course on Windows 98 at a local community college or getting a department subscription to *Wired*. Also, permit nontechies to attend local computer trade shows. Very often, these shows, even if targeting MIS personnel, offer how-to seminars on everything from the ramifications of computer industry consolidation to successful knowledge management software implementations.

● If your company has the resources, it may want to sponsor or co-sponsor a course on technology for TRUS (The Rest of US). Merrill Lynch is giving MIT $5 million to develop a course so that IT majors can learn more about finance. Your company's goals don't have to be as lofty or costly. Consider underwriting a technology productivity course at a local community college.

● Groom future employees to be technology-literate. Like many U.S. executives, Keithley of Keithley Instruments is concerned that the United States isn't encouraging enough youngsters to pursue careers in math or science. To spur things along, he volunteers with a local community organization. He meets with teachers and students to talk about the sciences and spark their interest.

GENERATION GAPS

While we are starting to bridge the wide gulf between technical and nontechnical professionals, we also need to pay attention to the growing gap between baby boomers and Generation Xers in technical competency. Unlike their boomer col-

■ CROSS-DISCIPLINARY EDUCATION GROWS

An increasing number of academic institutions are devising programs to make technologists more conversant in business and business types more knowledgeable about technology. Here's a sample of those programs:

■ Arizona State University   www.asu.edu

The university's School of Accountancy and Information Management offers a course that teaches nontechnology majors how to use decision support systems in their work. These systems allow users to analyze and make decisions based on information from corporate data warehouses.

■ Bentley College   www.bentley.edu

The college is developing a new Information Age MBA, a two-year program that will become available this fall. Students will not only learn about various business disciplines (economics, accounting, finance, marketing and operations management), but also the technology that drives them. For example, they will use SAP, an enterprise resource planning software, as they practice identifying, analyzing and solving business problems in their course work.

■ Lehigh University   www.lehigh.edu

The university offers a Master of Science Degree in Management of Technology (MS-MOT). The degree is designed to meet the functional and general management needs of technology-intensive companies and integrates business and engineering interests.

■ Massachusetts Institute of Technology's Sloan School of Management
mitsloan.mit.edu

With financial backing from Merrill Lynch, MIT is devising a new graduate minor in financial technology. The minor will provide finance education for MIT graduate students from fields such as engineering, math, computer science and media studies. The program will increase the emphasis on teaching financial software applications within the engineering school's technology courses.
                                                                    —J.C.M.

leagues and bosses, the Xers have acquired the rudiments of technology long before they cross the corporate threshold. This is the generation that grew up with Sony GameBoys and Nintendo video games. They know how to program their video recorders.

If they didn't learn Computers 101 sitting at a home PC, they generally picked up what they needed to know in courses offered to nontechnology majors in college. For example, the University of Texas in Austin has developed a technology literacy and culture course for liberal arts majors who want to bone up on computers, says Barbara Santos, director of the liberal arts career services center. The university's library also offers free workshops on how to navigate the Internet or design a Web site, she says.

In fact, for younger members of the workforce, the problem isn't that they're clueless about technology; it's that their employers or bosses are behind the curve in their own use of technology. "I hear from students more and more that they are disappointed to find employers who aren't technically literate," Santos confesses. "Their employers have old computers on their desk or they don't have a Web page." The day may come that your HR department will want your department to spruce up its electronic wares just to prove more appealing to job recruits. What type of PC sits on a desktop—a Pentium III or a 386—can say a lot about your company to the well-wired generation.

For those of us who don't have the opportunity or inclination to develop a working knowledge of technology by osmosis, there is no need to despair. But there is a need to get more "with it"—technologically speaking. There shouldn't be any excuse for not picking up enough know-how to get you through the average workday. Just ask Dennis McFarland, vice president of sales and marketing at Tegam Inc., Geneva, Ohio,

a privately held electronic instrument manufacturer with about 100 employees. Before joining Tegam, McFarland ran a semiconductor company. He's worked in high-tech most of his life but his background is definitely low-tech: He came up through the advertising and marketing ranks. "These days, some degree of computer literary is required for almost every job," McFarland says.

In his case, McFarland picked up much of his technology knowledge on the job. But he's also taken his share of college courses. He would be the first to admit he's not a bits-and-bytes guy, and he says he doesn't have to be. But he does need to know enough about technology to figure out ways to do his job better and ensure that his company doesn't get caught unaware by any new technological developments, which may put it at a disadvantage. At a very basic level, when a Tegam engineer comes to McFarland with a new product idea, McFarland has to know enough about technology to evaluate it and determine if "we can make money on it." Or, if his head of IT requests a sizable technology investment, McFarland must be able to decide if it's money well spent.

The most important thing to remember: life goes on and so does education. If you or your subordinates stop learning, you all stop being useful. And in the Information Age, much of your knowledge must be about computers. Working in today's technology-dependent workplace is tough, but it's worth the price in time and resources to learn more about it. **MR**

Jenny C. McCune has written on technology since the infancy of the personal computer. She is a contributing editor to "Beyond Computing," a magazine for IT professionals published by IBM, and has written for technology publications such as "Small Business Computing" and "Home Office Computing." E-mail: jennymccune@imt.net